





THE IMPERIAL ENCYCLOPEDIA AND DICTIONARY

A LIBRARY OF UNIVERSAL
KNOWLEDGE AND AN UN-
ABRIDGED DICTIONARY OF
THE ENGLISH LANGUAGE
UNDER ONE ALPHABET

IN FORTY VOLUMES

VOLUME 4
BARBAROSSA—BILL BROKER

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SCHEME OF SOUND SYMBOLS

FOR THE PRONUNCIATION OF WORDS.

Note.—(-) is the mark dividing words respelt phonetically into syllables; ('), the accent indicating on which syllable or syllables the accent or stress of the voice is to be placed.

Sound-symbols employed in Respelling.	Representing the Sounds as exemplified in the Words.	Words respelt with Sound-symbols and Marks for Pronunciation.
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<i>ā</i> ...	mate, fate, fail, aye.....	<i>māt, fāt, fāl, ā.</i>
<i>ă</i> ...	mat, fat.....	<i>măt, făt.</i>
<i>â</i> ...	far, calm, father.....	<i>fâr, kâm, fâ'thêr.</i>
<i>ä</i> ...	care, fair.....	<i>câr, fâr.</i>
<i>aw</i> ...	fall, laud, law.....	<i>farwl, lawd, law.</i>
<i>ē</i> ...	mete, meat, feet, free.....	<i>mēt, mēt, fēt, frē.</i>
<i>ě</i> ...	met, bed.....	<i>mět, běd.</i>
<i>é</i> ...	her, stir, heard, cur.....	<i>hêr, stêr, hêrd, kêr.</i>
<i>î</i> ...	pine, ply, height.....	<i>pîn, plî, hît.</i>
<i>ĩ</i> ...	pin, nymph, ability.....	<i>pîn, nĩmf, â-bĩl'ĩ-tĩ.</i>
<i>ō</i> ...	note, toll, soul.....	<i>nôt, tōl, sōl.</i>
<i>ǒ</i> ...	not, plot.....	<i>nőt, plőt.</i>
<i>ó</i> ...	move, smooth.....	<i>mór, smóth.</i>
<i>ö</i> ...	Goethe (similar to <i>e</i> in her)...	<i>gö'tch.</i>
<i>ow</i> ...	noun, bough, cow.....	<i>noun, bow, kow.</i>
<i>oy</i> ...	boy, boil.....	<i>boy, boyl.</i>
<i>û</i> ...	pure, dew, few.....	<i>pûr, dû, fû.</i>
<i>ũ</i> ...	bud, come, tough.....	<i>bũd, kũm, tũf.</i>
<i>û</i> ...	full, push, good.....	<i>fûl, pûsh, gûd.</i>
<i>ü</i> ...	French plume, Scotch guid.....	<i>plũm, gũd.</i>

<i>ch</i> ...	chair, match.....	<i>châr, mäch.</i>
<i>ċh</i> ...	German buch, Heidelberg, Scotch loch (guttural).....	<i>bôch, hĩ'del-bêrch, lôch.</i>
<i>g</i> ...	game, go, gun.....	<i>gām, gō, gũn.</i>
<i>j</i> ...	judge, gem, gin.....	<i>jũj, jēm, jĩn.</i>
<i>k</i> ...	king, cat, cot, cut.....	<i>kĩng, kăt, kôt, kût.</i>
<i>s</i> ...	sit, scene, cell, city, cypress.....	<i>sĩt, sĩn, sêl, sīt'ĩ, sĩ'prês.</i>
<i>sh</i> ...	shun, ambition.....	<i>shũn, âm bĩsh'ũn.</i>
<i>th</i> ...	thing, breath.....	<i>thĩng, brêth.</i>
<i>th</i> ...	though, breathe.....	<i>thō, brêth.</i>
<i>z</i> ...	zeal, maze, muse.....	<i>zêl, mâz, mûz.</i>
<i>zh</i> ...	azure, vision.....	<i>ăzh'er, vĩzh'ũn.</i>

ABBREVIATIONS.

Chal.....Chaldee
 chap.....chapter
 chem.....chemistry, chemical
 Chin.....Chinese
 Chron.....Chronicles
 chron.....chronology
 Cl.....Chlorine
 Class.....Classical [= Greek
 and Latin]
 Co.....Cobalt
 Co.....Company
 co.....county
 cog.....cognate [with]
 Col.....Colonel
 Col.....Colossians
 Coll.....College
 colloq.....colloquial
 Colo.....Colorado
 Com.....Commodore
 com.....commerce, commer-
 cial
 com.....common
 comp.....compare
 comp.....composition, com-
 pound
 compar.....comparative
 conch.....conchology
 cong.....congress
 Congl.....Congregational
 conj.....conjunction
 Conn or Ct.....Connecticut
 contr.....contraction, con-
 tracted
 Cop.....Coptic
 Cor.....Corinthians
 Corn.....Cornish
 corr.....corresponding
 Cr.....Chromium
 crystal.....crystallography
 Cs.....Cæsium
 ct.....cent
 Ct. or Conn.....Connecticut
 Cu.....Copper [*Cuprum*]
 cwt.....a hundred weight
 Cyc.....Cyclopedia
 D.....Didymium
 D. or Dut.....Dutch
 d.....died
 d. [l. s. d.].....penny, pence
 Dan.....Daniel
 Dan.....Danish
 dat.....dative
 dau.....daughter
 D. C.....District of Columbia
 D. C. L.....Doctor of Civil [or
 Common] Law
 D. D.....Doctor of Divinity
 Dec.....December
 dec.....declension
 def.....definite, definition
 deg.....degree, degrees
 Del.....Delaware
 del.....delegate, delegates
 dem.....democratic
 dep.....deputy
 dep.....deponent
 dept.....department
 deriv.....derivation, deriva-
 tive
 Deut.....Deuteronomy
 dial.....dialect, dialectal
 diam.....diameter
 Dic.....Dictionary

diff.....different, difference
 dim.....diminutive
 dist.....district
 distrib.....distributive
 div.....division
 doz.....dozen
 Dr.....Doctor
 dr.....dram, drams
 dram.....dramatic
 Dut. or D.....Dutch
 dwt.....pennyweight
 dynam or
 dyn.....dynamics
 E.....Erbium
 E. or e.....East, -ern, -ward
 E. or Eng.....English
 Eccl.....Ecclesiastes
 eccl. or } ecclesiastical [af
 eccles.... } fairs]
 ed.....edited, edition, edi-
 tor
 e.g.....for example [*ex*
gratia]
 E. Ind. or } East Indies East
 E. I. } Indian
 elect.....electricity
 Emp.....Emperor
 Encyc.....Encyclopedia
 Eng. or E.....English
 engin.....engineering
 entom.....entomology
 env. ext.....envoy extraordinary
 ep.....epistle
 Eph.....Ephesians
 Episc.....Episcopal
 eq. or =.....equal, equals
 equiv.....equivalent
 esp.....especially
 Est.....Esther
 estab.....established
 Esthon.....Esthonian
 etc.....and others like [*et*
cetera]
 Eth.....Ethiopic
 ethnog.....ethnography
 ethnol.....ethnology
 et seq.....and the following
 [*et sequentia*]
 etym.....etymology
 Eur.....European
 Ex.....Exodus
 exclam.....exclamation
 Ezek.....Ezekiel
 Ezr.....Ezra
 F.....Fluorine
 F. or Fahr.....Fahrenheit
 f. or fem.....feminine
 F. or Fr.....French
 fa.....father
 Fahr. or F.....Fahrenheit
 far.....farriery
 Fe.....Iron [*Ferrum*]
 Feb.....February
 fem or f.....feminine
 fig.....figure, figuratively
 Fin.....Finnish
 F.—L.....French from Latin
 Fla.....Florida
 Flem.....Flemish
 for.....foreign
 fort.....fortification
 Fr. or F.....French
 fr.....from

ABBREVIATIONS.

freq.....frequentative	ind.....indicative
FrisFrisian	indef.....indefinite
ft.....foot, feet	Indo-Eur.....Indo-European
fut.....future	inf.....infantry
G. or Ger...German	inf or infin.infinite
G.....Glucinium	instr.....instrument, -al
Ga.....Gallium	int....interest
Ga.....Georgia	intens.....intensive
Gael.....Gaelic	interj. or
GalGalatians	int.....interjection
gal.....gallon	interrog....interrogative pro-
galv.....galvanism, galvanic	noun
gard.....gardening	intr. or
gen.....gender	intrans...intransitive
Gen.....General	Io...Iowa
GenGenesis	Ir.....Iridium
gen.....genitive	Ir.....Irish
Geno.....Genoese	Iran.....Iranian
geog.....geography	irr.....irregular, -ly
geol.....geology	Is.....Isaiah
geom.....geometry	It.....Italian
GerGerman, Germany	Jan.....January
Goth.....Gothic	Jap.....Japanese
Gov.....Governor	Jas.....James
govt.....government	Jer.....Jeremiah
GrGrand, Great	Jn.....John
Gr.....Greek	Josh.....Joshua
gr.....grain, grains	Jr.....Junior
gramgrammar	JudgJudges
Gr. Brit....Great Britain.	K.....Potassium [<i>Kalium</i>]
Gris.....Grisons	K.....Kings [in Bible]
gungunnery	K.....king
H.....Hegira	Kan.....Kansas
H.....Hydrogen	Kt.....Knight
h.....hour, hours	Ky.....Kentucky
Hab.....Habakkuk	L.....Latin
Hag.....Haggai	L.....Lithium
H. B. M.....His [or Her] Britan- nic Majesty	l. [l. s. d.], } pound, pounds or £..... } [sterling]
Heb.....Hebrew, Hebrews	La.....Lanthanum
her.....heraldry	La.....Louisiana
herpet.....herpetology	Lam.....Lamentations
Hg.....Mercury [<i>Hydrar- gyrum</i>]	Lang.....Languedoc
hhd.....hogshead, hogsheads	lang.....language
Hind.....Hindustani, Hindu, or Hindi	Lap....Lapland
hist.....history, historical	lat.....latitude
HonHonorable	lb.; llb. or } pound: pounds lbs..... } [weight]
hort.....horticulture	Let.....Lettish
HosHosea	Lev.....Leviticus
Hung.....Hungarian	LG.....Low German
Hydros....Hydrostatics	L.H.D.....Doctor of Polite Lit- erature
IIodine	Lieut.....Lieutenant
I.; Is.....Island; Islands	Lim.....Limousin
Icel.....Icelandic	Lin.....Linnæus, Linnæan
ichth.....ichthyology	lit.....literal, -ly
IdaIdaho	lit.....literature
i.e.....that is [<i>id est</i>]	Lith..Lithuanian
Ill.....Illinois	lithog.....lithograph, -y
illus.....illustration	LL.....Late Latin, Low Latin
impera or	LL.D.....Doctor of Laws
impr.....imperative	long.....longitude
impers.....impersonal	Luth.....Lutheran
imp for imp imperfect	M.....Middle
impf. p. or	M.....Monsieur
imp.....imperfect participle	m.....mile, miles
improp.....improperly	m. or masc.masculine
In.....Indium	M.A.....Master of Arts
in.....inch, inches	Macc.....Maccabees
incept.....inceptive	mach.....machinery
Ind.....India, Indian	Mag.....Magazine
Ind.....Indiana	

ABBREVIATIONS.

Maj.....	Major	N. A., or	
Mal.....	Malachi	N. Amer.	North America, -n
Mal.....	Malay, Malayan	nat.....	natural
manuf.....	manufacturing, manufacturers	naut.....	nautical
Mar.....	March	nav.....	navigation, naval af- fairs
masc or m.	masculine	Nb....	Niobium
Mass.....	Massachusetts	N. C. or	
math.....	mathematics, math- ematical	N. Car...	North Carolina
Matt.....	Matthew	N. D.....	North Dakota
M.D.....	Doctor of Medicine	Neb.....	Nebraska
MD.....	Middle Dutch	neg.....	negative
Md.....	Maryland	Neh.....	Nehemiah
ME.....	Middle English, or Old English	N. Eng....	New England
Me.....	Maine	neut or n...	neuter
mech.....	mechanics, mechani- cal	Nev.....	Nevada
med.....	medicine, medical	N.Gr.....	New Greek, Modern Greek
mem.....	member	N. H.....	New Hampshire
mensur...	mensuration	NHG.....	New High German [German]
Messrs. or		Ni ..	Nickel
MM.....	Gentlemen, Sirs	N. J.....	New Jersey
metal.....	metallurgy	NL.....	New Latin, Modern Latin
metaph....	metaphysics, meta- physical	N. Mex. ...	New Mexico
meteor.....	meteorology	N. T., or	
Meth.....	Methodist	N. Test...	New Testament
Mex.....	Mexican	N. Y.....	New York [State]
Mg.....	Magnesium	nom.....	nominate
M.Gr.....	Middle Greek	Norm. F...	Norman French
MHG....	Middle High Ger- man	North. E ..	Northern English
Mic.....	Micah	Norw....	Norwegian, Norse
Mich.....	Michigan	Nov.....	November
mid.....	middle [voice]	Num.....	Numbers
Milan.....	Milanese	numis.....	numismatics
mid. L. or }	Middle Latin, Me-	O.....	Ohio
ML..... }	diæval Latin	O.....	Old
milit. or		O.....	Oxygen
mil....	military [affairs]	Obad.....	Obadiah
min ..	minute, minutes	obj.....	objective
mineral...	mineralogy	obs. or †...	obsolete
Minn.....	Minnesota	obsoles ..	obsolescent
Min. Plen.	Minister Plenipoten- tiary	O.Bulg....	Old Bulgarian or Old Slavic
Miss.....	Mississippi	Oct.....	October
ML. or }	Middle Latin, Me-	Odontog...	odontology
mid. L. ... }	diæval Latin	OE.....	Old English
MLG.....	Middle Low German.	OF or	
Mlle.....	Mademoiselle	O. Fr....	Old French
Mme.....	Madam	OHG....	Old High German
Mn.....	Manganese	Ont.....	Ontario
Mo.....	Missouri	opt ..	optics, optical
Mo.....	Molybdenum	Or.....	Oregon
mod.....	modern	ord.....	order
Mont.....	Montana	ord....	ordnance
Mr.....	Master [Mister]	org.....	organic
Mrs.....	Mistress [Missis]	orig.....	original, -ly
MS.; MSS.	manuscript; manu- scripts	ornith.....	ornithology
Mt.....	Mount, mountain	Os.....	Osmium
mus.....	music	OS. ...	Old Saxon
Mus.Doc...	Doctor of Music	O. T., or	
myth ..	mythology, mytho- logical	O. Test...	Old Testament
N.....	Nitrogen	Oxf.....	Oxford
N. or n....	North, -ern, -ward	oz.....	ounce, ounces
n.....	noun	P.....	Phosphorus
n or neut...	neuter	p.; pp.....	page; pages
Na.....	Sodium [<i>Natrium</i>]	p., or part..	participle
Nah.....	Nahum	Pa. or Penn.	Pennsylvania
		paint ..	painting
		palæon....	palæontology
		parl.....	parliament
		pass.....	passive

ABBREVIATIONS.

pathol or
 path.....pathology
 Pb.....Lead [*Plumbum*]
 Pd.....Palladium
 Penn or Pa. Pennsylvania
 perf.....perfect
 perh.....perhaps
 Pers.....Persian, Persic
 pers.....person
 persp.....perspective
 pert.....pertaining [to]
 Pet.....Peter
 Pg. or Port. Portuguese
 phar.....pharmacy
 PH.D.....Doctor of Philoso-
 phy
 Phen.....Phenician
 Phil.....Philippians
 Philem.....Philemon
 philol.....philology, philologi-
 cal
 philos. { philosophy, philo-
 or phil... } sophical
 phonog.....phonography
 photog.....photography
 phren.....phrenology
 phys.....physics, physical
 physiol... physiology, physi-
 ological
 Pied.....Piedmontese
 Pl.....Plate
 pl. or plu...plural
 Pl. D.....Platt Deutsch
 plupf.....pluperfect
 P.M.....afternoon [*post meri-
 diem*]
 pneum.....pneumatics
 P. O.....Post-office
 poet.....poetical
 Pol.....Polish
 pol econ...political economy
 polit.....politics, political
 pop.....population
 Port. or Pg. Portuguese
 poss.....possessive
 pp.....pages
 pp.....past participle, per-
 fect participle
 p. pr.....present participle
 Pr. or Prov. Provençal
 pref.....prefix
 prep.....preposition
 Pres.....President
 pres.....present
 Presb.....Presbyterian
 pret.....preterit
 prim.....primitive
 priv.....privative
 prob.....probably, probable
 Prof.....Professor
 pron.....pronoun
 pron.....pronunciation, pro-
 nounced
 prop.....properly
 pros.....prosody
 Prot.....Protestant
 Prov. or Pr. Provençal
 Prov.....Proverbs
 prov.....province, provincial
 Prov. Eng. Provincial English
 Prus.....Prussia, -n
 Ps.....Psalm, Psalms
 psychol...psychology

pt.....past tense
 pt.....pint
 Pt.....Platinum
 pub.....published, publisher,
 publication
 pwt.....pennyweight
 Q.....Quebec
 qt.....quart
 qtr.....quarter [weight]
 qu.....query
 q.v.....which see [*quod*
 vide]
 R.....Rhodium
 R.....River
 Rb.....Rubidium
 R. Cath....Roman Catholic
 rec. sec....recording secretary
 Ref.....Reformed
 refl.....reflex
 reg.....regular, -ly
 regt.....regiment
 rel. pro. or
 rel.....relative pronoun
 repr.....representing
 repub.....republican
 Rev.....Revelation
 Rev.....The Reverend
 Rev. V.....Revised Version
 rhet.....rhetoric, -al
 R. I.....Rhode Island
 R. N.....Royal Navy
 Rom.....Roman, Romans
 Rom.....Romanic or Ro-
 mance
 Rom. Cath. { Roman Catholic
 Ch. or R. }
 C. Ch.... } Church
 r.r.....railroad
 Rt. Rev....Right Reverend
 Ru.....Ruthenium
 Russ.....Russian
 r.w.....railway
 S.....Saxon
 S.....Sulphur
 s.....second, seconds
 s. [l. s. d.]..shilling, shillings
 S. or s.....South, -ern, -ward
 S. A. or
 S. Amer..South America, -n
 Sam.....Samaritan
 Sam.....Samuel
 Sans, or
 Skr.....Sanskrit
 Sb.....Antimony [*Stibium*]
 s.c.....understand, supply,
 namely [*scilicet*]
 S. C. or
 S. Car....South Carolina
 Scand.....Scandinavian
 Scot.....Scotland, Scotch
 scr.....scruple, scruples
 Scrip.....Scripture [s], Scrip-
 tural
 sculp.....sculpture
 S. D.....South Dakota
 Se.....Selenium
 sec.....secretary
 sec.....section
 Sem.....Semitic
 Sep.....September
 Serv.....Servian
 Shaks.....Shakespeare
 Si.....Silicon

ABBREVIATIONS.

Sic.....	Sicilian	trigon.....	trigonometry
sing.....	singular	Turk.....	Turkish
sis.....	sister	typog.....	typography, typographical
Skr. or		U.....	Uranium
Sans....	Sanskrit	ult.....	ultimate, -ly
Slav.....	Slavonic, Slavic	Unit.....	Unitarian
Sn....	Tin [<i>Stannum</i>]	Univ.....	Universalist
Soc.....	Society	Univ....	University
Song Sol..	Song of Solomon	U. Presb..	United Presbyterian
Sp.....	Spanish	U. S....	United States
sp. gr.....	specific gravity	U. S. A....	United States Army
sq.....	square	U. S. N....	United States Navy
Sr.....	Senior	Ut.....	Utah
Sr....	Strontium	V.....	Vanadium
St.: Ste....	Saint	v.....	verb
St....	street	Va.....	Virginia
stat.....	statute	var.....	variant [word]
s.T.D.....	Doctor of Sacred Theology	var.....	variety of [species]
subj.....	subjunctive	Ven.....	Venerable
suf.....	suffix	Venet.....	Venetian
Su. Goth...	Suo-Gothic	vet....	veterinary
superl....	superlative	v. i. or	
Supp.....	Supplement	v. intr....	verb intransitive
Supt....	Superintendent	vil.....	village
surg.....	surgery, surgical	viz.....	namely, to-wit [<i>vide-licet</i>]
Surv.....	surveying	v. n.....	verb neuter
Sw.....	Swedish	voc.....	vocative
Swab.....	Swabian	vol.....	volume
sym.....	symbol	vols.....	volunteers
syn.....	synonym, -y	Vt.....	Vermont
Syr.....	Syriac, Syrian	v. tr.....	verb transitive
t.....	town	W.....	Tungsten [<i>Wolfram</i>]
Ta....	Tantalum	W.....	Welsh
Tart.....	Tartar	W. or w....	West, -ern, -ward
Te.....	Tellurium	Wal.....	Walachian
technol...	technology	Wall.....	Walloon
teleg.....	telegraphy	Wash.....	Washington
Tenn.....	Tennessee	Westph....	Westphalia, -n
term.....	termination	W. Ind. }	West Indies, West
terr.....	territory	or W. I... }	Indian
Teut.....	Teutonic	Wis.....	Wisconsin
Tex.....	Texas	wt.....	weight
Th.....	Thorium	W. Va.....	West Virginia
theat.....	theatrical	Wyo.....	Wyoming
theol.....	theology, theological	Y.....	Yttrium
therap.....	therapeutics	yd.....	yard
Thess....	Thessalonians	yr.....	year
Ti.....	Titanium	Zech.....	Zechariah
Tim.....	Timothy	Zeph.....	Zephaniah
Tit.....	Titus	Zn.....	Zinc
Tl....	Thallium	zool.....	zoology, zoological
toxicol...	toxicology	Zr.....	Zirconium
tp.....	township		
tr. or trans.	transitive		
transl.....	translation, trans. lated		

See also ABBREVIATIONS: in Vol. I

THE IMPERIAL CYCLOPEDIA AND DICTIONARY.

BARBAROSSA, *bâr-ba-rôs'a*, ARUCH or HORUC: son of a renegade of Lemnos, and a noted pirate. Having by his success in piracy on the coast of Barbary made himself master of 12 galleys stoutly manned with Turks, he assisted Selim, King of Algiers, in driving the Spaniards out of that country, and, having taken possession of the capital, put Selim to death and mounted the throne himself. He died in 1518.

BARBAROSSA, HAYRADIN or KHAYR EDDIN: younger brother of the preceding. He surrendered the sovereignty of Algiers to Selim I., Sultan of Turkey, in exchange for a force of 2,000 janissaries and the title of Dey; and made himself master in Tunis, but in 1535 Emperor Charles V. besieged and captured the city and liberated a vast number of Christian slaves. He was made capitan pasha, or high admiral of the Turkish fleet, in 1537, and in this capacity he distinguished himself by a long course of exploits against the Venetians and Genoese. He died in 1546.

BARBAROSSA: see FREDERICK I.

BARBAROUX, *bâr-bâ-rô'*, CHARLES: 1767-94, June 25; b. Marseille: one of the most distinguished and energetic of the Girondists; elected to attend the Constituent Assembly at Paris, he opposed the court, and took part with the minister, Roland, then out of favor. After the events of Aug. 10, he returned to his native town, where he was received with enthusiasm, and chosen delegate to the convention. In the convention, he adhered to the Girondists, and belonged to the party who, at the trial of the king, voted for an appeal to the people. As B. boldly opposed the party of Marat and Robespierre, and even directly accused the latter of aiming at the dictatorship, he was, 1793, May, proscribed as a royalist and an enemy of the republic. He wandered about the country, hiding himself as he best could, for thirteen months, when he was taken, and perished at Bordeaux by the guillotine, 1794, June 25. B. understood the revolutionary crisis much better than the most of his party. Had the Girondists generally possessed anything like his energy and sagacity, the Jacobins must have succumbed, and much bloodshed and horror would have been spared to France and the world.

BARBARY, *bâr'ba-ri*: extensive region in n. Africa, comprising the countries known in modern times under the names of Barca, Tripoli Proper, Fezzan, Tunis, Algeria, and Morocco, together with the half-independent province of Sus; and in ancient times, under the names of *Mauritania*, *Numidia*, *Africa Propria*, and *Cyrenaica*. It stretches from Egypt to the Atlantic Ocean, and from the Mediterranean to the Desert of Sahara, or between long. 10° w. and 25° e., and lat. 25°–37° n. The n.w. of this region is divided by the Atlas Mountains into two parts: the n. comprising Morocco, Algeria, and Tunis; the s. a half-desert region, called Belud-el-Jerid, the country of dates. Though pertaining geographically to Africa, B. is not African in its characteristics; but in climate, flora, fauna, and geological configuration, belongs to that great region which forms the basin of the Mediterranean. It is watered by many small streams, which either flow into the Mediterranean or into the salt-lakes on the edge of the Desert, according as they rise on the n. or s. slopes of the Atlas Mountains. A large portion of the country is capable of cultivation, and sandy or rocky tracts are rare, except on the s. margin. During the times of the Carthaginians, Greeks, and Romans, it was richly fertile, and all the natural conditions of its ancient productiveness still remain.—For an account of the climate, geology, productions, etc., see the various countries.

Among the people, besides the French and other Europeans, seven distinct races may be enumerated: Berbers (or Kabyles), Moors, Beduins, Jews, Turks, Kuluglis, and Negroes. The Berbers and Beduins inhabit the open country; the Moors reside in towns. Most of the Berber tribes are either wholly free, or subject to the mere nominal jurisdiction of native chiefs, kaid, judges, etc. The Beduins luxuriate in equal liberty. Jews had settled here in ancient times, but the greater number of that race immigrated when the Moors were expelled from Spain. The Turks entered B. in the 16th c. They form the dominant race in Tripoli and Tunis, but never established themselves permanently in Morocco. Their sway in Algeria was brought to an end by the French. The Kuluglis (the children of Turks by native mothers) are excluded from all the paternal rights and privileges. The negroes are not natives of B., but are brought thither as slaves, principally from Sudan and Guinea. They are for the most part domestic slaves. The population, exclusive of Jews and Christians, is about 11,000,000, all Mohammedans. Arabic is the language of commerce and intercourse, and in Morocco, the language of government, and the mother-tongue of Beduins, Moors, and even Jews; but in Tripoli and in all the regions in which the Turks are still dominant, the language of government is Turkish. The Berbers Proper, or Kabyles, especially in the highlands, to which they have been driven by foreign conquerors, use a peculiar speech among themselves.

In the oldest historical times, we find the Mauri (the ancestors of the modern Moors) mentioned as residing in

BARBARY.

the n.w. of B., the Numidians in the interior and eastern parts, and the Phœnician colonies on the coasts. These last people formed settlements and founded cities—among them Utica, Hippo, Hadrumetum, Leptis, and afterwards Carthage, about B.C. 1000. It does not appear that they ever penetrated far into the interior. Confining themselves to the coast between the Great Syrtis and the Straits of Gibraltar, they maintained commerce with the people of the interior and the seaports of the Mediterranean. In B.C. 7th c. the Greeks founded Cyrene, considerably to the e. of Carthage, and colonized the plateau of Barca, now styled Jebel-el-Achdar by the Arabs. While the Phœnician colonies held sway on the coast, the Mauri and the Numidians were divided into several independent tribes, and, like their neighbors the Gætuli, were wholly uncivilized. After the second Punic war, the Romans extended their sway over Carthaginian Africa, which became a Roman province at the close of the third Punic war, when the city of Carthage was sacked and destroyed. Numidia was 'annexed' after the victory over Jugurtha, and Mauritania after the defeat of King Juba, the ally of Pompey's party. The son of Juba, bearing the same name, was allowed to reign as a nominal sovereign by Augustus; but Mauritania was, in fact, a Roman province. Thus, the Romans had acquired a territory in Africa extending from the Great Syrtis to the Atlantic (corresponding to the modern states of B.), which formed some of the largest and most flourishing provinces of their vast empire. Everywhere they built large towns, whose extensive ruins are still to be seen scattered over the whole land, even to the verge of the Desert; as, for instance, those at El-Haman, in the regency of Tunis, at Sava, Musulupium, and especially the splendid city of ruins, Lambasa, not far from the Desert of Sahara. The Romans had, in general, only two legions, numbering 24,000 men, in their African provinces; nevertheless, their authority was uncontested, and they were enabled to undertake important works, such as the cisterns and aqueducts at Rusicada, Hippo, and Cirta, and the temples and amphitheatres of Calama and Anuna, which clearly show that the inhabitants enjoyed the benefits of a safe and powerful civilization.

Under Constantine, n. Africa was divided into the several provinces, Mauritania-Tingitana, Mauritania-Cæsariensis (e. of the former), Mauritania-Sitifensis, Numidia, Zeugitania, Byzacium, Cyrenaica, and the Regio Syrtica. At the division of the empire, the whole of these provinces, with the exception of the last, fell to the share of the Western Empire. About this time, Christianity was promulgated in Africa, and with such success, that in the three Mauritanias there were more than 160 dioceses. As Roman power declined in Europe, the consequences were severely felt in the African provinces. Religious disturbances, native revolts, and the ambitious aspirations of the Roman governors after independence, loosened the political bands which bound the provinces together, and made them an easy prey to the Vandals, who landed in Africa A.D. 429, under the ferocious

BARBARY APE.

Genseric, and in an almost incredibly short time overran the country, which they savagely misgoverned until 533, when they were defeated by Justinian's great general, Belisarius. Meanwhile the Numidians and the Mauri had made themselves masters of the interior and of the coast of Mauritania-Tingitana, and the Greek-Roman territories were restricted to the neighborhood of Carthage and some points on the coast. The whole country of B. was thus made an easy prey for the Arabs, and in 647, Abdallah-ben-Said, with 40,000 fanatical Mohammedans from Egypt, defeated and slew the Greek prefect Gregorius, at Tripoli. He did not, however, follow up his victories; but in 665-670 the Arabian general, Akbah, conquered the coast-towns of Tripoli, founded Cairo, and extended his sway almost to the Desert. Hassan, the general of the Caliph Abd-el-Malek, 692, stormed, plundered, and destroyed the new Carthage, and, in fact, annihilated the Greek-Roman dominion in Africa. In the course of less than a century, the greater part of the native tribes were converted forcibly to the faith of Islam. In 789, the w. provinces separated themselves from the others, and Edris-ben-Abdallah founded there the dynasty of the Edrisites. After 800, when the governor, Ibrahim-ben-Aglab, declared himself independent, and founded the dynasty of the Aglabites, Africa was lost to the caliphs. From this time to 1269, the changes of dynasty in B. were frequent, with the result that independent states arose in Algeria, Oran, Bugia, Tenez, etc. About this time, also, began the reaction of the Christian world against Mohammedanism in n. Africa and Spain. St Louis undertook an expedition against Tunis. The Moors were, by and by, expelled from Spain, and settled themselves on the coast of n. Africa, there to begin that course of piracy by which they became odious to Europe, first as a fierce retaliation against their Christian persecutors, but ultimately as a barbarous profession. As early as the time of Ferdinand the Catholic, the Spaniards sought to check their insolent ravages, and landed in Africa on several occasions, capturing the ports of Centa, Melilla, Oran, Bugia, the island before Algiers, and Tripoli. The Portuguese landed on the coast of Morocco, where at first they had great success; but they were ultimately compelled to leave the country. After various changes of fortune, Algiers, Tunis, and Tripoli were brought under the government of the sultan. Since 1830, however, the first of these (see ALGERIA), has been under French sway, and since 1882 Tunis (q.v.) also; while Tripoli is only nominally dependent on the Turkish ruler. A similar fate, at a much earlier period, befell the w. part of B., where the successors of the Arabian Sherif, Mula-Mehemed, overthrew the kings of Morocco and Fez, and established the Sherif dynasty, which rules to the present day over these lands. Pop. of B. (exclusive of Jews and Christians), abt. 11,000,000, all Mohammedans.—See Réclus' *Géographie Universelle*; Johnston's *Africa* in Stanford's *Compendium*. See ALGERIA: MOROCCO: etc.

BARBARY APE, PIGMY APE, or MA'GOT: a small

BARBARY GUM—BARBASTEL.

species of ape or tailless monkey, interesting as the only one of the monkey-race found in Europe. The only European locality, however, in which it occurs is the Rock of Gibraltar, and it is said to have been originally brought from n. Africa. It inhabits the precipitous sides of the Rock, inaccessible to human foot, and has a certain measure of protection from firearms in return for the amusement afforded by its manners. It is gregarious, and large numbers are often seen together, the females carrying their young upon their backs. In some parts of n. Africa, the



Barbary Ape.

B. A. is extremely abundant, inhabiting rocky mountains and woods. It is very agile in passing from tree to tree, and its bands often plunder gardens, one of their number keeping careful watch. It feeds on fruits, roots, etc.; and its fondness for eggs is supposed to have given rise to the ancient story of the battle of the pigmies and the cranes. It is of a greenish-gray color, paler underneath; and in size resembles a large cat. The characters agree with those of the genus *Macacus* (Wanderoo Monkey, q.v., etc.), except that the tail is reduced to a mere tubercle. The muzzle is somewhat elongated, although not nearly so much as in the baboons, with which this ape has sometimes been classed, and the facial angle is much higher than in them. The face is almost naked, and somewhat wrinkled. The ears are in form not unlike human ears. The eyes are round, reddish, and of great vivacity. The B. A. is one of the monkeys most frequently seen in captivity; and possessing a considerable degree of intelligence, is capable of being trained to many tricks, if it is taken young; the older ones are often sullen and mischievous. It usually walks on four feet, although it can be trained to stand or walk, in a more awkward manner, on two. It is filthy in its habits.

BAR'BARY GUM, n.: gum of the *Acacia gummifera*, a native of Mogador, Morocco.

BARBASTEL, or BARBASTELLE, n. *bâr'bas-têl* [F. *barbastelle*—from *Barbastro* in Aragon]: a bat, the *Plecotus barbastellus*. It is of a deep brown color, with the end of each hair yellow. Found in France and Germany. See BAT.

BARBASTRO—BARBED AND CRESTED.

BARBASTRO, *bâr-bâs'trô*: walled town of Spain, province of Aragon; on the Vero. It has a cathedral with some paintings by Antonio Galceran. Pop. (1877) 8,000.

BARBATE, a. *bâr'bât*, or BARBATED, a. *bâr'bâ-téd* [L. *barbatus*, having a beard—from *barba*, a beard]: in *bot.*, bearded. BARBULE, n. *bâr'bûl*, a very minute barb or beard.

BARBAULD, *bâr'bawld*, ANNA LETITIA: 1743, June 20—1825, Mar. 9; b. Kibworth-Harcourt, Leicestershire, where her father, the Rev. John Aikin, a dissenting minister, kept an academy. Her private education, the religious influence of her home, and secluded life in the country, early developed her natural taste for poetry; but not until 1773 were her poems published. Encouraged by the demand for four editions during the year, she, with her brother, published, the same year, *Miscellaneous Pieces in Prose* (Lond. 1773), which passed through many editions. In 1774, she married the Rev. Rochemont Barbauld, a dissenting minister at Palgrave, Suffolk, in which village the newly married pair opened a boarding school for boys, which soon gained celebrity through the literary fame and the assiduity of Mrs. B. During the ten years of her work in this school she published *Early Lessons for Children*, and *Hymns in Prose*, works often reprinted for youthful readers, and translated into several languages; also *Devotional Pieces*. In 1792, she began, with her brother, the well-known series, *Evenings at Home*, which were finished in three years—her brother writing the most of them. In 1795, she edited Akenside's *Pleasures of Imagination*, and Collins's *Odes*, prefixing to each a critical essay. In 1804, she began to edit a selection from the *Spectator*, *Guardian*, *Tatler*, etc.; and in 1810 published a collection of the British Novelists, the task of editing which she had undertaken to divert her mind from her loss in the death of her husband two years previously. *The Female Spectator* (Lond. 1811) contains a selection from her writings. Her last poetical effort was an ode, entitled *Eighteen Hundred and Eleven* (Lond. 1812). All her compositions are characterized by simplicity of feeling, an easy, flowing style, and pure and elevated sentiment, and give token of a mind well versed in classical literature. Her life was written by her sister, Lucy Aikin, also known as an authoress, and was prefixed to the collection of the *Works of A. L. Barbauld* (2 vols., Lond. 1825). Lucy Aikin also published Mrs. B.'s *Legacy for Young Ladies* (1826). See Miss Thackeray's *Book of Sibyls* (1883).

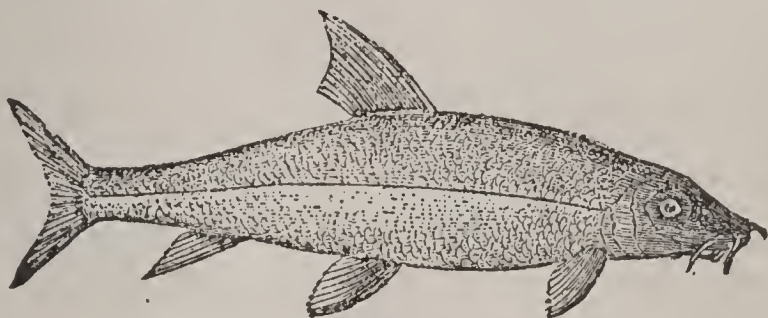
BARBECUE, n. *bâr'bî-kû* [F. *barbe-à-queue*, from snout to tail: Sp. *barbacoa*]: in the W. Indies, a term used for dressing a hog whole by splitting it to the backbone and laying it upon a gridiron above a fire, which also surrounds it; on coffee estates, a floor for drying the bean: V. to roast or dress a hog whole, or any other animal, in some way. BAR'BEUING, imp. BARBECUED, pp. *bâr'bî-kûd*.

BARBED AND CRESTED: heraldic terms, by which the comb and gills of a cock are designated, when it is necessary to particularize them as being of a different tinc-

BARBEL.

ture from the body. The common English term is *Wattled and Combed*, gules, or whatever else the tincture may be.

BARBEL, n. *bár'bél* [Dut. *barbeel*; OF. *barbel*—from L. *barba*, a beard], (*Barbus*): genus of fishes of the family of the *Cyprinidæ* (q.v.), differing from *Cyprinus* (Carp, Goldfish, etc.) in the short dorsal and anal fins, in having one of the rays of the dorsal fin strong and serrated, and the mouth furnished with four soft barbules (whence the name B., from Lat. *barba*, a beard), two near the point of the snout, and one at each angle of the mouth. The upper jaw also



Barbel.

extends considerably beyond the lower. The species are numerous. Like the other *Cyprinidæ*, they all are inhabitants of fresh water, and generally of muddy ponds and rivers, where they seek food by plowing up the mud with their snouts, like swine, and are said often to seize the small fishes which come to share with them the worms and insects of the mud. They also feed upon the leaves and roots of aquatic plants.—The common B. (*B. vulgaris*) is abundant in many of the rivers of the temperate parts of Europe. It is the only species found in Britain, and only in some of the still and deep rivers of England. It is very abundant in the Thames, frequenting the weedy parts of the river in shoals in summer, and seeking the deeper water in winter, becoming so torpid during cold weather, that the fishermen sometimes take it with the hand, or by pushing it with a pole into a small net fastened to an iron hoop. It grows to a large size, sometimes 3 ft. in length, and 15 to 18 lbs. in weight; it is of a rather long shape, in section nearly circular; the general color of the head and upper part of the body, greenish brown, becoming yellowish green on the sides; the belly white, the tail somewhat forked, and of a deep purple color. It affords sport to anglers, but is a very coarse fish, and little used for food except by the poor, who often boil bacon with it to give it a relish. The larger barbels are esteemed the best. The roe has poisonous qualities, although its effects are disagreeable rather than permanently injurious.

The B. is a ground feeding fish, grubbing on the bottom for his sustenance. The baits principally used to capture him are worms and maggots, greaves, and eelcse; and the means of angling for him are chiefly with a dead-line, called a ledger (with a perforated leaden bullet), or with float-tackle. The rod for ledger-fishing is short and stiff; the hook about No. 5 or 6 in size; in float-fishing the tackle

is finer and the hook smaller. The weight, or the float, is so arranged that the bait lies near the bottom. From 18 to 20 hours before angling for B., it is desirable to bait the place to be fished, for the purpose of drawing the fish together. The B. may be said to be gregarious; it spawns in May or June, choosing some gentle shallow for that purpose, but soon recovers its strength. About the end of July, the B. seeks the deep rapid streams, and may be seen vigorously springing from the water in his endeavors to rid himself of the parasitical insects which attach themselves to him during his quiescence. Here he remains the greater part of the summer and autumn. Frosty weather renders the B. torpid, and he takes shelter under some large stone or weed, where he can lie up during the winter. Although the B. is by no means an estimable fish for the table, it is much used by the Jews in their fasts and festivals.

Another species, called the Binny, or B. of the Nile, is very abundant in that river; attains a very great size, 70 lbs. or upwards; is much esteemed for food; and is taken by hooks baited with dates steeped in honey. A number of baited hooks, each attached to a separate strong line, are enclosed in a mass of clay, flour, dates, etc., which is sunk in the river, and to which, as it begins to dissolve, the binnies are attracted; when boring into it with their snouts, and devouring the dates, they are caught. The fish being generally hooked by the projecting upper jaw, is allowed to remain in the water, the line being fastened on shore, and is taken out when wanted for immediate use.

BARBER [see BARB]: one who shaves beards and cuts or dresses the hair of the head. Barbers are of great antiquity, at least for shaving a portion of the head: see Ezek. v. 1. Barbers at one time acted as a kind of surgeons, and had a higher social position than now. See BARBER-SURGEON. Anciently, one of the utensils of the B. was a brass basin, with a semicircular gap in one side to compass a man's throat to prevent soiling of the clothing in applying lather to the face; still in use in some towns in Europe as a B.'s sign. BARBER'S ITCH, contagious eruption on the bearded chin and lips, arising from inflammation of the follicles (see SYCOSIS).

BARBERINO-DI-MUGELLO, *bâr-bâ-rê'nô dê mô-jêl'lô*: town of Tuscany, on the Siere, 15 m. n. of Florence; with large manufacture of straw-hats. The royal villa of Caf-fegiolo, the ancient residence of the Medicis, stands in the environs. Pop. 5,000.

BARBERINO-DI-VAL-D'ELSA, *-vâl-dêl'sâ*: village in Tuscany, with a beautiful situation on the ridge between the valleys of the Pesa and Elsa; celebrated as the place where Pope Urban VIII. was born. One of the palaces of the Barberini is here.

BARBERRY, n. *bâr-bêr'rî* (correctly spelled BERBERRY) [Sp. *berbêris*; Ar. *barbâris*, the barberry-tree], (*Berberis*): genus of plants, of the nat. ord. *Berberidacæ* (q.v.). All the species, which are numerous in temperate climates

BARBERRY.

in most parts of the world except Australia, are shrubs with yellow flowers, having a calyx of six leaves, a corolla of six petals, and six stamens, which, when touched at the base, show considerable irritability, starting up from their ordinary position of reclining upon the



Common Barberry (*Berberis vulgaris*): *a*, a flower; *b*, ripe fruit.

petals, and closing upon the pistil, apparently a provision to secure fecundation. The fruit is a berry with two or three seeds. Not a few of the species are evergreen. They are divided into two sub-genera, sometimes ranked as genera; those with simple leaves forming the sub-genus *Berberis*, and those with pinnate leaves the sub-genus *Mahonia*, or Ash-leaved B.—The Common B. (*B. vulgaris*) is a native of most of the temperate parts of Europe, Asia, and N. America. It produces its flowers and fruit in pendulous racemes; has obovate, slightly serrate, deciduous leaves; and numerous straight three-forked spines. It is a very ornamental shrub, especially when covered with fruit. Its berries are of an elongate oval form; when ripe, generally of a bright red color, more rarely whitish, yellow, or almost black. They contain free malic acid. The fruit of the ordinary varieties is too acid to be eaten, but makes excellent preserves and jelly. Malic acid (q.v.) is extensively prepared from it in France. A yellow fungus, *Aecidium Berberidis*, is very general upon the under-side of the leaves of the B.; and a notion prevails that it produces rust in grain. This old scouted belief has been remarkably verified by science, the rust existing in one form or

stage on the barberry, in another on grain, to which it is communicated. This forbids the employment of the B. as a farm-hedge, for which it is otherwise adapted, hedges made of it being easily kept free from gaps, and becoming more and more impervious by new shoots thrown up from the root. The yellow root of the B. is used for dyeing yellow, and especially the inner bark of it and of the stem and branches. The bark is capable of being employed for tanning leather. In like manner, *B. glauca*, *B. ilicifolia*, *B. tomentosa*, and *B. lutea* are used for dyeing in Chili and Peru; *B. tinctoria* by the inhabitants of the Neilgherry Hills, and *B. aristata* in Nepaul; and a strong similarity of properties appears to pervade the whole genus. *B. Lycium*, a native of the n. of India, is characterized by great astringency, and an extract prepared from it is valuable in ophthalmia. Most of the species are more or less spiny, and some of the evergreen species (as *B. dulcis*) might be very ornamentally employed for hedge-plants. *B. dulcis*, sometimes called the Sweet B., is a native of the s.w. coast of America. Its leaves much resemble those of the common B.; it has solitary flowers on rather long stalks, and globose black berries about the size of a common black currant. The fruit is quite sweet when fully ripe, and makes excellent jelly. When unripe and very acid, it is used for tarts. Pleasant fruits are produced also by *B. aristata*, and *B. Asiatica*, the berries of both of which are dried in Nepaul, after the manner of raisins; *B. concinna*, also a Himalayan species; *B. microphylla*, found in the southern parts of S. America; and *B. trifoliata*, found in Mexico. Those of some of the other species are either disagreeable or insipid, which is particularly the case with most of the ash-leaved barberries, natives of N. America and the n. of India. See BERBERINE.

BARBER-SURGEON: barber of former times, acting as a kind of surgeon, at least in such smaller operations as blood-letting—in nearly all countries. Till this day, on the pole on which the barber's basin is suspended, there is represented a twisted or spiral ribbon, which symbolizes the winding of a ribbon round the arm previous to blood-letting. In London, Edinburgh, and elsewhere, the barber-surgeons formed corporations with certain privileges. The surgical duties of these bodies now pertain to the corporations of surgeons. The existence of these professors of the healing art, in England, can be traced as far back as the reign of Edward IV., 1461, when they were first incorporated; and thence till the reign of Henry VIII., when they were united with the surgeons, until the time of George II., when they ceased to be anything but barbers as we now understand the term; the preamble of an act then passed reciting that not till then had the discovery been made that the business or trade of a barber was 'foreign to, and independent of, the practice of surgery.' But the act expressly saves all their privileges as a company or corporation, and as such they exist to the present day. See an interesting account of them in Knight's *History of London*, vol. iii. pp. 177–192, which concludes with the following

BARBET—BARBICAN.

curious extract from the list of officers to Heriot's Hospital in the statutes of that charity compiled in 1627: 'One chirurgion barber *who shall cut and pole the hair of all the scholars of the hospital*; and also look to the cure of all those within the hospital who *anyway* shall stand in need of his *art*.' For the government and working of this company at the present day, see the Report of the Royal Commissioners appointed to inquire into the corporations of London (printed 1837). The barbers still retain their ancient hall—which they possessed before the surgeons were disunited from them—in Monkwell street, Cripple-gate, in the city of London. See APOTHECARIES: SURGEONS: TRADE CORPORATIONS.

BARBET, n. *bâr'bět* [F.—from *barbe*, a beard]: a species of dog having long coarse hair; a bird of warm climates whose bill is surrounded at the base with bristles; a kind of worm that feeds on the aphides.

BAR'BET (*Bucco*): genus of birds generally placed by ornithologists in the family of *Picidae*, or Woodpeckers (q. v.), but regarded as the type of a very distinct sub-family, exhibiting points of resemblance to the cuckoos. They have a large conical beak, surrounded with tufts of bristles directed forwards—a characteristic from which the name B. is derived (Lat. *barba*, a beard). They prey on insects, some of them also on young birds; some are at least partially frugivorous. They inhabit warm parts both of the e. and w. hemispheres, and most of them are birds of gay plumage. The Linnæan genus has been subdivided, and includes, besides the true barbets, the Barbacous (*Monasa*), S. American birds—the Barbicans (*Pogonias*) of Africa and India—the American Puff-birds (*Tomatia*), etc. The Puff-birds are remarkable for erecting their plumage till they resemble a round ball. Being birds of short wing, both they and the true barbets wait for their prey, generally sitting with great patience on some withered branch till it comes near them, when they suddenly dart upon it. They often choose positions close to human habitations, and show little fear.

BARBETTE, n. *bâr'bět'* [F. *barbette*; It. *barbetta*, a tuft of hair on the pastern-joint of a horse]: an earthen terrace inside a parapet, raised to such a height as to admit of guns being fired over the crest of the parapet, instead of through the embrasures. Guns are said to be *en barbette* when placed on such an earthen mound, or on a high carriage.

BARBICAN, n. *bâr'bĩ-kăn* [AS. *barbacan*; F. and It. *barbacane*; Sp. *barbacana*, a loop-holed outlook in a fortified place]: a projecting watch-tower, or other advanced work, before the gate of a castle or fortified town. The term B. was specially applied to the outwork intended to defend the drawbridge, which in modern fortifications is called the *tête du pont*. 'To begin from without, the first member of an ancient castle was the B., a watch-tower, for the purpose of descrying an enemy at a greater distance' (Grose's *Antiquities of England and Wales*), and, to the same effect, Camden, speaking of Bedford Castle, says it was taken

by four assaults; in the first was taken the B.; in the second, the *outer* balia. See BAILEY. See also Parker's *Glossary of Architecture*. There are a few perfect barbicans remaining in England, as at Alnwick and Warwick;



Barbican.

but the best examples of it, as of the other parts of the fortification of the middle ages, are probably to be seen in the town of Carcassone (q.v.). A very curious and minute account of the siege of Carcassone, 1240, in the form of a report to Queen Blanche by the seneschal who defended it, preserved in the archives of France, has been published in Hewitt's *Ancient Armour* (p. 355, *et seq.*), in which the uses of the B. are fully illustrated. The street called Barbican in London, near Aldersgate street, marks the site of such a work, in front of one of the gates of the old city.

BARBIE'RI, GIOVANNI (OR GIAN) FRANCESCO: see GUERCINO.

BARBIERS: see BERIBERI.

BAR'BITON, or BAR'BITOS: stringed instrument of the ancient Greeks; made of ivory, in the form of a lyre, with seven strings; said to have been invented by Anacreon.

BARBLES, n. *bâr'blz*, or BARBELS, *bâr'belz* [F. *barbes*]: white excrescence which grows under the tongue of some calves, and prevents them from sucking.

BARBOU, *bâr-bô'*: name of a celebrated French family of printers, the descendants of John, of Lyon, 16th c. From his press issued the beautiful edition of the works of Clement Marot, 1539. His son, Hugh, removed from Lyon to Limoges, where, among other works, his celebrated edition of *Cicero's Letters to Atticus* appeared, 1580. Joseph Gerard, descendant of the same family—who in the beginning of the 18th c. settled in Paris—continued, 1755, the series of Latin classics in duodecimo—rivals to the Elzevirs of an earlier date—which had been begun 1743 by Coustelier, at the instigation of the learned Lenglet Dufresnoy. This series of classics, prized for its elegance and correctness, was purchased with the rest of the business, by Delalain, from the heirs of Hugh, who d. 1809. There is a

BARBOUR—BARBY.

complete set of the B. classics in the Royal Library of the British Museum.

BARBOUR, *bár'bur*, JOHN: eminent Scottish poet of the 14th c; b. (as conjectured) abt. 1320; d. prob. March 13, 1395; parentage unknown. He is famous for producing the national epic, *The Bruce*. In his own age he was accounted a man of great learning and worth; he was Archdeacon of Aberdeen from as early as 1357 till his death; in 1357, he travelled into England, accompanied by three scholars, for the purpose of studying at Oxford; and repeated his visit for the same purpose 1364; in 1365, he obtained a passport 'to travel through England with six companions on horseback towards St Denis and other sacred places;' in 1368, he again received permission to travel through England with two servants and two horses, on his way for scholarly purposes to France; in 1373, he was clerk of audit of the household of King Robert II., and one of the auditors of exchequer, holding the latter office again 1383 and 1385; in 1375, his great poem was more than half finished; in 1377, he had a gratuity of ten pounds from King Robert II.; in 1378, he received from the same prince a perpetual annuity of twenty shillings, which in 1380 he bequeathed to the dean and chapter of Aberdeen, under the condition that they should sing a yearly mass for the rest of his soul; in 1388, King Robert II. granted him a pension of ten pounds a year. Besides *The Bruce*, B. wrote other two poems, *The Brute*, now lost, in which he recounted the origin and history of the royal house of Stuart, and *The Book of Legends of the Saints*, recently discovered in Cambridge Univ. Library. *The Bruce* is distinguished by great purity and clearness of style, the language and versification comparing advantageously with those of any contemporary English poet, not excepting even Chaucer. His imagery is not rich, but his style is lively, simple and energetic. He has depicted, in rough but faithful outline, the life, manners, and deeds of a truly heroic time, and given to his country the first poem in her literature, and the earliest history of her best and greatest king.—*The Bruce* was first printed by Dr. Jamieson 1820; and edited by Cosmo Innes, for the Spalding Club 1856. The Early English Text Society also published an edition edited by Rev. W. W. Skeat.

BARBUDA, *bár-bó'da*: one of the British Caribbees, 30 miles to the n. of Antigua. Of its n. end, the lat. and long. are 17° 33' n., and 61° 43' w. Area, estimated 75 sq. m. The island, small as it is, has never been cleared for cultivation, the greater part of the interior being a dense forest interspersed with patches of savanna. The agriculture is confined to the rearing of stock and the growing of provisions. B. is of coral formation, and beset with reefs. It has a roadstead, but no harbor. Pop. (1871) 813.

BARBUS, n. *bár'bŭs* [L. *barbus*, a barbel]: genus of fishes of the teleost order *Teleocephali*, and the family *Cyprinidæ*. One species occurs in Britain.

BARBY, *bár'bē*: walled town of Prussian Saxony, on

BARCA—BARCELONA.

the left bank of the Elbe; 15 m. s.e. of Magdeburg. It is well built, and has an old castle. Pop.—chiefly engaged in the manufacture of woolens and linens—over 7,000.

BARCA, *bár'ka*: country in n. Africa; lat. 26°–33° n., long. 20°–25° e.; between the Great Syrtis (now called the Gulf of Sidra) and Egypt. It forms the eastern division of Tripoli, having the rest of that dominion on the w., the Mediterranean Sea on the n., the Libyan Desert on the s., and it is separated from Egypt on the e. by no definite line, but by a number of roving independent tribes. It corresponds nearly with the ancient Cyrenaica (q.v.). The climate is healthful and agreeable in the more elevated parts, which reach a height of about 1,200 ft., and in those exposed to the sea-breeze. There are none but small streams, but the narrow terrace-like tracts of country are extremely fertile, realizing all that is said of the ancient Cyrenaica. Rice, dates, olives, saffron, etc., are produced in plenty. The pastures are excellent; the horses still celebrated as in ancient times. But the good soil extends over only about a fourth of B.: the east exhibits only naked rocks and loose sand. Many ruins in the n.w. parts attest a former cultivation much superior to the present. So early as the time of Cyrus, B. became a state, which proved dangerous to the neighboring state of Cyrene; but within a single century it sank, and became subject to Egypt. In the Roman period, its inhabitants were noted for their predatory incursions. It was afterwards a province of the Greek empire, and had declared itself independent when the Arabs invaded and conquered it, 641. The present inhabitants consist of Arabs and Berbers, who profess the Mohammedan religion, and are subject to the Pacha of Tripoli, to whom each of the beys pays an annual tribute. Pop. in 1900 est. 302,000.

BARCAROLLE, n. *bár'kă-röl* [F. *barcarole*—from It. *barcarole*; It. *barca*, a barge]: a species of song peculiar to the gondoliers of Venice. The name is applied to musical compositions for voice or pianoforte of a similar character.

BARCELLONA, *bár-chěl-lō'ná*, AND PCZZO DI GOTTO, *pôt'so dē go'to*: two towns of Sicily, province of Messina; 22 m. w.s.w. of Messina; close together, really forming one town, the two parts separated by a small stream, the Fiume di Castro Reale, supposed the Longanus of antiquity. The chief street is a long street of mean houses of a single story. B. is in a broad plain, between the mountains and the sea, abounding in corn, wine, oil, and fruit. Pop. of the two towns, 14,471.

BARCELONA, *bár-sé-lō'ná*: the most important manufacturing city in Spain, in the province of B.; beautifully situated on the Mediterranean between the mouths of the Llobregat and the Besos, in a district as luxuriant as a garden. It is walled, and has a citadel, which, however, is effectually commanded by the fortress of Montjuich on the s.w. The city is divided into two parts—the old town and the new—by the *Rambla* (river-bed), which has been planted with flowering shrubs, and formed into a beautiful

BARCELONA.

promenade. The streets of the old town, forming the n.w. division, are crooked, narrow, and ill paved. Those of the new are much more spacious and regular. There is a large suburb e. of the town, where the seafaring portion of the population chiefly reside. B. is the see of a bishop. It has a university, and colleges and schools for general and special educational purposes; public libraries, in one of which is a splendid collection of MSS.; several hospitals and other charitable institutions; the finest theatre in Spain; and numerous ancient and elegant churches, with a cathedral which, begun in 1298, is not yet completed. B. manufactures silk, woolens, cottons, lace, hats, firearms, etc., which form its principal exports. It imports raw cotton, coffee, cocoa, sugar, and other colonial produce; also Baltic timber, salt-fish, hides, iron, wax, etc. Next to Cadiz, it is the most important port in Spain. In 1883, 4, 08, vessels (1,006 of them foreign), with a tonnage of 1,476,694 tons, discharged cargoes in the port. The harbor was extended and its entrance improved 1875. In 1883, both imports and exports had a value of more than \$45,000,000. B. is a place of great antiquity, and associated with many historical events. Local tradition fixes the date of its foundation 400 years before the Romans; and it is said to have been refounded by Amilcar Barca, the father of Hannibal, from whom its ancient name, Barcino, was derived. An important city under the Romans, Goths, and Moors, B. in 878 became an independent sovereignty, under a Christian chief of its own, whose descendants continued to govern it, and to hold the title of Counts of Barcelona until the 12th c. when its ruler adopted the title of King of Aragon, to which kingdom it was annexed. During the middle ages, B. became a flourishing seaport, rivalled in the Mediterranean by Genoa only. To its commercial code, framed in the 13th c., much deference was paid by the whole of Europe; and it was at this time, says Ford in his *Handbook of Spain*, 'a city of commerce, conquest, and courtiers; of taste, learning and luxury; and the Athens of the troubadour.' Columbus was received here, 1493, by Ferdinand and Isabella, after his discovery of America. In 1640, it appealed to France against the tyranny of Philip IV.; but it turned against that country in the war of the Spanish Succession, and adhered to Austria. In 1705, the fortress of Montjoui was surprised and captured by Lord Peterborough, and the city surrendered shortly afterwards. In 1714, after a most heroic defense, it was stormed by the Duke of Berwick, and given over to fire and sword. Napoleon perfidiously obtained possession of it in 1808; and with one or two reverses, and in the face of great difficulties, it was held by the French until the treaty of peace concluded in Paris 1814. For thirteen years, B. remained quiet under the iron rule of España; but in 1827 its old turbulent spirit returned, and it rose in favor of Don Carlos. Since that time, B. has generally supported the government. But a Progressist rebellion in 1856 caused much bloodshed, and in 1874 the

Federalists raised an insurrection here. Pop. (1864) 190,000; (1868) reduced by cholera, 167,095; (1900) 533,000.

The province of BARCELONA has 2,950 sq. m.; pop. (1878) 835,306; (1884) 849,887; (1900) 1,054,541.

BARCELONA: t. of Venezuela, cap. of the state of Bermudez, near the mouth of the Neveri, 160 m. e. of Caracas. The surrounding country is fertile, but B. is very unhealthful. Exports: cattle, hides, indigo, cotton, cacao. —Pop. about 13,000.

BARCLAY, *bâr'klĭ*, ALEXANDER: a poet and prose writer, born in England or Scotland about the end of the 15th c.; d. 1552, June. He studied at Oxford, and obtained appointment as one of the priests or prebendaries of St. Mary Ottery, Devonshire. He afterward became a monk of the Benedictine monastery of Ely, where he continued until its suppression, 1539. He died six weeks after he had been presented to the rectory of All-Hallows, London. His claim to notice rests chiefly upon his famous poem, *The Shyp of Folyes of the Worlde*—partly a translation, and partly an imitation of the German *Narrenschiff* by Brandt—printed by Pynson 1509, and since often reprinted (best edition by T. H. Jamieson, 1874). It is interesting as showing the manners and customs of the times satirized. He published several other works, among them *The Myrrour of Good Manners*, *The Castell of Labour*, *The Egloges*, the first eclogues that appeared in the English language; and made a translation of Sallust's *History of the Jugurthine War*. He was admired for his wit and eloquence, and his writings have a refinement not common in that age.

BARCLAY, *bâr-klā'*, JOHN: a clever poet and satirist, abt. 1582–1621, Aug. 12; b. Pont-à-Mousson, Lorraine, where his father William, a Scotsman (d. 1605), had held the office of prof. of law. He studied in the Jesuit College of that place; and his distinguished talents caused the Jesuits to try to induce him to enter their order. His rejection of their proposals brought much persecution on him and his father. He accompanied his father to England 1603, where he soon attracted the attention of James I., to whom he dedicated one of his works, *Euphormionis Satyricon* (Lond. 1605), a politico-satirical romance, chiefly against the Jesuits. Next appeared his *Conspiratio Anglicana* (Lond. 1605), and his *Icon Animarum* (Lond. 1614). In 1615, he left England, and went to Rome, where he died. In the same year his celebrated work *Argēnis* appeared in Paris (Paris, 1621). It was in Latin, and has been translated into several languages. There are three translations into English; the last appeared 1772. It is a political allegory, containing clever allusions to the state of Europe, particularly of France, during the time of the League. *Argēnis* was admired by both Cowper and D'Israeli.

BARCLAY, JOHN: 1734–98: see BEREANS.

BARCLAY, JOHN, M.D.: 1758, Dec. 10—1826, Aug. 21, b. Cairn, near Drummaquhance, Perthshire, Scotland; educated at the parish school of Muthil, and the Univ. of

St. Andrews. He studied for the ministry of the Church of Scotland, and was licensed as a preacher; but turned to the profession of medicine, and particularly to the study of anatomy; and, 1797, became a private lecturer on human and comparative anatomy in Edinburgh. He pub., 1803, *A New Anatomical Nomenclature*; 1808, a treatise on the *Muscular Motions of the Human Body*; 1812, *Description of the Arteries of the Human Body*, a work of vast labor and accurate observation. He died at Edinburgh, leaving to the Royal College of Surgeons in Edinburgh, his admirable anatomical collection.

BARCLAY, ROBERT: celebrated apologist of the Quakers: 1648, Dec. 23—1690, Oct. 3; b. Gordonstown, Morayshire, Scotland; grandson of David B. of Mathers, of an old Scoto-Norman family, which traced itself through fifteen generations to Walter de Berkeley, who acquired a settlement in Scotland about the middle of the 12th c. Robert's mother was the daughter of Sir Robert Gordon, the premier baronet of Nova Scotia, historian of the House of Sutherland. Robert received the rudiments of learning in his native country, and was sent to the Scotch College at Paris, of which his uncle was rector, where his rapid progress in his studies, excited the admiration of his preceptors, as well as of his uncle, who offered to make him his heir, if he would remain in France, and formally adopt the Rom. Cath. faith, to whose ceremonies he had been habituated there. B. refused, and in compliance with the wish his mother had expressed on her death-bed, he returned home, 1664. Though only sixteen, B. was an excellent scholar, and could speak in Latin with wonderful fluency and correctness. In 1667, he embraced the principles of the Society of Friends, for reasons more highly respected in our day than in his. He states in his *Treatise on Universal Love*, that his 'first education fell among the strictest sort of Calvinists,' those of his country 'surpassing in the heat of zeal not only Geneva, from whence they derive their pedigree, but all the other so-called reformed churches;' that shortly afterwards, his transition to France had thrown him among the opposite 'sect of papists,' whom, after a time, he found to be no less deficient in charity than the other; and that, consequently, he had refrained from joining any, though he had listened to several. The ultimate effect of this was to liberalize his mind, by convincing him of the folly and wickedness of sectarian strife. In both Calvinists and Catholics, he found an absence of 'the principles of love,' 'a straitness of doctrine,' and a 'practice of persecution,' which offended his idea of Christianity, as well as his gentle and generous nature. He therefore allied himself gladly to this new sect, whose distinguishing feature was its charity and pure simplicity of Christian life, and soon became one of its most devoted adherents and its ablest advocate. In the course of his life, he made several excursions into England, Holland, and Germany, earnestly propagating his peaceful views wherever he went, and occasionally in the companionship of William Penn. His first publication was *Truth Cleared of Calumnies*, 1670;

intended as a refutation of the charges—many of them notoriously false—made against the new sect. In 1673, appeared *A Catechism and Confession of Faith*, the answers to the questions being—to avoid theological dogmatism—in the words of Scripture. This was followed by *The Anarchy of the Ranters*, etc. In 1675, he published his *magnum opus*, elaborately entitled *An Apology for the True Christian Divinity, as the same is held forth and Preached by the People called in scorn Quakers: Being a full Explanation*, etc. It contains a statement and defense of fifteen religious propositions peculiar to the Friends. The leading doctrine of the book is, that divine truth is made known to us not by logical investigation, but by intuition or immediate revelation; and that the faculty, if it can be technically defined, by which such intuition is rendered possible, is the 'internal light,' the source of which is God, or, more properly, Christ, God manifest, 'who is the light that lighteth every man that cometh into the world.' The identity of this doctrine with that held by F. D. Maurice and others of the 'Broad Church' in the present day has been more than once remarked. In 1677, appeared his *Treatise on Universal Love*. It was the first of that long series of noble and gentle remonstrances against the criminality of war that has so honorably distinguished the Society of Friends. It was addressed to the ambassadors of the several princes of Europe, met at Nimeguen. In 1686, he published his last work, a defense of the doctrine of 'immediate revelation.' He died at Ury, Kincardineshire. His estate remained in the possession of his descendants until 1854, its owner at that time being Captain Barclay, the famous pedestrian. 'The Apologist's Study,' which remained much as he left it, was long an object of pilgrimage with members of the Society of Friends: it was destroyed a few years ago, when the old house of Ury was pulled down.

BARCLAYA, n. *bār'klā-a* [after *Robert Barclay*]: genus of aquatic plants belonging to order *Nymphaeaceæ* and tribe *Barclayidæ*; found in E. Indies.

BARCLAY DE TOLLY, *bār-klā' deh to-le'*, MICHAEL, PRINCE: 1759-1818; b. in Livonia, where his father, Gottlieb B. de T.—at one time a member of the town-council of Riga—possessed an estate. Prince Michael, one of the most distinguished Russian generals, was descended from a branch of the same Scotch family to which Barclay the poet and Barclay the apologist of the Quakers, belonged, some of whom had settled in Mecklenburg and Livonia. Having been adopted by General van Vermoulen, B. de T. entered a Russian regiment of cuirassiers, at first as sergeant. He fought with great bravery in the Turkish war of 1788-89; in the campaign against Sweden, 1790; and in those against Poland 1792 and 1794. In 1806, at Pultusk, as maj.gen., he commanded Benningsen's advanced-guard. He lost an arm at the battle of Eylau. Although much hated by the Russian national party, because regarded by them as a German, he was appointed minister of war by the

BAR-COCHBA.

Emperor Alexander 1810—an office which he held till 1813. In 1812, he was made commander-in-chief of the army of the west. His retreat to Smolensko, and the loss of the battle fought there Aug. 17, raised the hatred of the Russian national party to a greater height, and he was compelled to yield the chief command to Kutusow. It has been maintained by many, that B. de T. was the originator of the Russian system of defense in 1812. He had indeed advised a retreat to the interior, and recommended the avoidance of a battle; but the system of defense, as a whole, originated with General Pfuel, who had left the Prussian service, and constantly accompanied the Emperor Alexander from the year 1807, without holding any distinct official appointment. At Moskwa, B. de T. commanded the right wing. After the death of Kutusow, he again obtained the chief command of the army, which he held at the battle of Bautzen, and retained till the truce. He afterwards commanded the Russian army in Bohemia, and took part in the battles of Dresden, Culin, and Leipsic. He was commander-in-chief of the Russian army in France, and in consequence of this was made a prince and a field-marshal. He died at Insterburg, on his way to the Bohemian baths. Two or three years before his death, the estate of Tolly or Towie, in Aberdeenshire, the old inheritance of his family, was for sale, and he was pressed to buy it, but refused, on the ground that his family had been so long expatriated that Scotland was now to them a strange country.

BAR-COCHBA, *bar-kok'ba*, SIMON: the leader of the Jews in their great insurrection against the Romans, under the Emperor Hadrian A.D. 131–135. Three times had the oppressed Jews revolted without success, from 115 to 118; and in 130, soon after Hadrian's return from Syria, a new rebellion broke out, for which they had been secretly preparing. At the head of it was one Simon, who assumed the name of Bar-cochba, i.e., 'Son of the Star,' pretending that the prophecy was to be fulfilled in him, 'There shall come a Star out of Jacob' (Numb. xxiv. 17). He fought at first with great success against the Romans, and even compelled them to evacuate Jerusalem, where he was proclaimed king, and caused coins to be struck with his name. The war spread over all Palestine, and 50 towns, besides many villages and hamlets, came into the possession of the Jews. But on the arrival of Hadrian's general, Julius Severus, Jerusalem was retaken; and in 135, Aug., Bethar, the very last fortress held by the Jews, was stormed by the Romans. B. fell on the day of this bloody conquest. During the war, hundreds of thousands of Jews were destroyed, and very cruel edicts were subsequently issued against them. From this last struggle dates the final dispersion of the Jews over the face of the earth. The Holy City was razed to the ground, and rebuilt under another name. The Jews still retain in their liturgy hymns which they chant in mournful memory of this tragic event. For a particular history of the struggle, see Münter's *Der Jüdische Krieg unter den Kaisern Thajan und Hadrian* (Altona, 1821).

BARD.

BARD, n. *bârd* [F. *barde*; It. *bardo*; L. *bardus*, a bard —from W. *bardd*; Gael. and W. *bard*, a poet]: one who sang his own poems among the ancient Celts; a poet. **BARDIC**, a. *bâr'dik*, pertaining to bards or minstrelsy. **BARDISM**, n. *bâr'dizm*, the learning and the maxims of bards.—*Bard* was the name known to the Romans since 200 B.C., by which the Gauls and other Celtic peoples (British, Welsh, Irish, and Scotch) designated their minstrels. Like the Scôps of the Anglo-Saxons, and the Skalds of Scandinavia, the bards celebrated the deeds of gods and heroes at religious solemnities and the festivities of princes and nobles, accompanying their recitations with the harp or chrotta (Ir. *cruit* and *clarseach*); they excited the armies to bravery, preceded them into the fight, and formed the heralds of princes, and the mediators of peace. The institution early disappeared among the Gauls, but lingered long in Wales, Ireland, and Scotland. The bards formed a hereditary order, and exercised a decided national influence. The minstrels among the Celts, as among the Germans, were the organ of the people, and the channel of all historical tradition. It is supposed that in Wales, about A.D. 940, their privileges were defined and fixed by the laws which bear the name of King Howel Dha; and in 1078 the whole order is said to have been reformed and regulated anew by Gryffith ap Conan. At Caerwys, Aberfraw, and Mathraval, there were held from time to time great competitions in minstrelsy, called *Eisteddfods*, at which the judges were appointed by the prince. When Wales was conquered by Edward I. (1284), the bards lost their privileges, and were, according to tradition, persecuted and put to death; but succeeding princes countenanced the institution, and *Eisteddfods* were repeatedly held under royal commission down to the reign of Elizabeth. Since then, exertions for the revival of national Welsh poetry and the bardic profession have been made by several societies: the Gwyneddigion, founded 1770; the Cambrian, 1818; and more recently, the Metropolitan Cambrian Institution. To these societies, and to the patriotism of individuals, are due collections of the relics of the lays of the Welsh bards, none of which, it should be added, can be traced to MSS. of an older date than the 12th c. The most interesting of those relics are those of Liwarc'h-Henn, Aneurin, and Taliesin. See Skene's *Four Ancient Books of Wales* (2 vols. 1868); Owen's *Myvyrian Archæology of Wales* (3 vols. 1801–07); *Poèmes des Bardes Bretons du VI^e Siècle*, par T. H. de la Villemarqué (Paris, 1850), etc. See WELSH LANGUAGE AND LITERATURE.

In Ireland, the bards are believed to have been a hereditary guild, divided into three classes: the *Fíledha*, who sang in the service of religion, and in war, and were the counselors and heralds of princes; the *Braitheamhain*, who recited or chanted the laws; the *Seanachaidhe*, who were chroniclers and genealogists to princes and nobles. Their ample privileges and endowments of land gave them an exorbitant influence, which both princes and people had sometimes to rise against and curb. The great skill of the

Irish bards on the harp was acknowledged everywhere. After the conquest of Ireland by Henry II., the profession began to sink. Still many of the chiefs maintained bards in their families, whose songs and legends kept up the national feeling. This occasioned several measures of the English rulers against the Irish bards; Elizabeth ordered the bards that were captured to be hanged, as the instigators of rebellion. Turlogh O'Carolan (1670-1737) is reckoned the last Irish bard; his poems were translated into English by Furlory. Other lays of the bards have been translated by Miss Brooke, *Relics of Irish Poetry* (Dub. 1789), and Hardiman, *Irish Minstrelsy* (Dub. 1831).

The bardism of Scotland may be conjectured to have been similar to that of Ireland; but nothing is certainly known of the subject beyond the fact, that there were poets or bards, of different degrees, in the Highlands down to the 17th century.

The name of B. was unknown among the Germanic nations; though a corrupt reading in some MSS. of the *Germania* of Tacitus (*barditus* for *baritus*, the 'war-cry') led Klopstock and others to write wild religious and war songs, which they called 'Bardits,' under the notion that they were restoring a branch of the national literature. This Ossianic aberration soon came to an end.

BARD, v. [see **BARDS**: to caparison; to adorn with trappings.

BARD: fortress and village of Piedmont, on the left bank of the Doire, about 23 m. s. s.e. of Aosta. When the French crossed the St Bernard, 1800, the fortress of B. offered a resistance to their further advance into Italy, which might have been effectual had the Austrian garrison been sufficiently alert. The French failed to take the fortress by storm, but they succeeded in dragging their artillery under and past the guns of the fort during the night, and were far on the road to Ivrea before the Austrian commander was aware that they had passed. B. was taken a short time after by the French, and razed, but it has since been restored. Pop. about 440.

BARDESANES, *bâr-de-sâ'nêz* (properly **BAR-DEISAN**): founder of a Gnostic sect; lived in the latter part of 2d c.; b. Edessa, in Mesopotamia. He stood high in favor with the monarch Abgar-bar Maanu, but little is known regarding him. It is stated that he held a disputation with the philosopher Apollonius, who appeared in Edessa 165, in the suite of L. Antonius Verus. B. was first a disciple of Valentinus, whose heresy he afterwards abjured, and wrote against it, and also against other heresies; but ultimately he relapsed into partial agreement with his old master. His *Gnosis* was not purely dualistic. He did not consider evil the eternal coefficient of good, but merely the result of a temporary reaction of matter on spirit. Yet, inexplicably enough, he maintained the devil to be a self-existent, independent being. He denied the doctrine of the resurrection of the body, and in conformity with such a conviction, asserted that Christ's body was not real, but only an illusive image brought down from heaven. He diffused his opin-

ions through the medium of hymns, of which he is reckoned the first writer in Syria. These hymns, fragments of which are still extant, show a rich and pure fancy. His followers were called *Bardiesanists*. See Hahn's *B.* (1819); Hilgenfeld's *B., der letzte Gnostiker* (1864).

BARDI, *bár'dē*: small town of Italy, on the left bank of the Ceno, in the province of Piacenza; 31 m. w.s.w. from Parma.

BARDINESS, a. *bárd'ĩ-nēs* [Scotch, *bardie*; -ness]: petulant frowardness, perverseness, and irascibility, as manifested in conversation.

BARDOLINO, *bár-do-lē'no*: town of northern Italy; with a harbor on Lake Garda; about 14 m. w. from the fortress of Verona. The battle of Rivoli was fought in its vicinity 1797, Jan.

BARDS, n. plu. *bárdz* [F. *bardes*, trappings for horses, thin slices of bacon for larding woodcocks, etc.: Sp. *barda*]: thin broad slices of bacon with which capons, pullets, etc., are dressed and baked for table.

BARE, a. *bär* [AS. *bær*; Ger. *baar*; Icel. *ber*, bare]: naked; without covering; plain; simple; poor: V. to make naked; to strip or uncover. **BARING**, imp. **BARED**, pp. *bárd*: **ADJ.** naked; exposed; uncovered. **BARELY**, ad. *bär'li*, indigently; slenderly; with difficulty. **BARE'NESS**, n. the state or quality of being bare nakedness. **BAREFACED**, a. *bär-fäst'*, shameless; impudent. **BAREFACEDLY**, ad. *-fäst'ed-li*. **BAREFAC'EDNESS**, n. effrontery; assurance; impudence. **BARE'-BONE**, a., or **BARE-BONED'**, a. *-bōnd'*, so lean that the bones show themselves. **BARE POLES**, applied to a ship without any sails set; either scudding before the wind, or lying to from stress of weather. **BARE'-FOOT**, a. ad., or **BAREFOOTED**, a. ad. *-fūt'ēd*, with the feet bare. **BAREHEAD'ED**, a. uncovered, as regards the head, from respect; without a covering for the head.—**SYN.** of 'bare, a.': naked; scanty; mere; uncovered; meagre; destitute.

BAREBONE'S PARLIAMENT: the 'Little Parliament' summoned by Oliver Cromwell, which met 1653, July 4, so called from Praise God Barebone, or Barbone, a leather merchant, and one of its members. It consisted of about 140 men of good position and of well-approved life and religion, but most of them holding destructive social theories. They proceeded to abolish the Court of Chancery, and were proceeding to abolish tithes, to the alarm of Cromwell himself and the more moderate men, when the parliament dissolved itself, Dec. 12 of the same year.

BAREFOOTED [Lat. *discalceati*, i. e., shoeless]: appellation given to certain monks and nuns who abstain from wearing any covering on the feet, either entirely (as the Alcantarines, who originated at Placentia Spain. 1540 but who are found at present chiefly in the kingdom of Naples), or for a specified period of the year (as the nuns of our Lady of Calvary); or who, instead of shoes, wear merely sandals, i. e., soles of wood, leather, rope, or straw fastened by

thongs. They do not constitute a separate order in the Rom. Cath. Church, but are found as a higher grade of asceticism with more or less severity of observance, among most of the orders, Carmelites, Franciscans, Augustines, Eremites, Capuchins, etc. They are steadily ignored by the more dignified Dominicans, though the latter are themselves mendicant friars. The origin of this form of religious austerity is to be traced generally to the custom which prevailed among the Jews and Romans of putting off their shoes on the occurrence of public calamities, that in this condition of mourning and humiliation they might implore the divine Being for deliverance; but perhaps more particularly to the command which Christ gave his disciples (Matt. x. 10; Luke x. 4).

BARÈGE, n. *bă-raizh'*: thin mixed tissue adapted for women's dresses, called in France *Crêpe de Barèges*; named from the town in the Pyrenees, though barèges were never made in that little watering place, the seat of the manufacture being at Bagnères de Bigorre. B. are usually a mixture of silk and worsted; an inferior kind being composed of cotton and worsted. They vary in color and are sometimes light in tint, with printed patterns. All are of a slight fabric for summer wear. The best are still manufactured in France.

BARÈGES, *bar-raizh'*: small watering place in France, in the Pyrenees, about 18 m. from Bagnères de Bigorre, The mineral water for which it is celebrated contains principally sulphuret of sodium, with portions of carbonate, muriate, and sulphate of soda, nitrogen, and sulphuretted hydrogen. Its efficacy in the cure of wounds, rheumatism, stiffness of joints, and scrofulous complaints is said to be remarkable. See Armieux' *Études Médicales sur B.* (1871). Pop. (1891) 400.

BAREGINE, n. *bă-rāzh'ên*: a peculiar organic substance derived from algæ, found in some hot springs of Barèges in the Pyrenees. Many algæ are found growing in mineral springs, especially those of a sulphuric nature. The product of their growth is a mucus-like substance somewhat resembling the white or glair of an egg. This deposit, abundant in the hot springs of Barèges, imparts a flesh-broth flavor and odor to the water, which is prized, and is sometimes imitated by adding animal gelatine to the sulphur-baths where B. is deficient.

BAREILLY, *bă-rā'lē*: chief city of a dist. in Rohilkund, N. W. Provinces of India. (*Rai Bareilly* is a different town, district, and division in Oude, near Lucknow.) The city B. is 152 m. e. of Delhi; pleasantly situated in a well-wooded country on the left bank of the Jooa, an affluent of the western Ramgunga. Besides a brisk and lucrative commerce, it has considerable manufactures, particularly of ornamental chairs and tables. It is the seat of a college of more than 300 students. B. became a name of notoriety in the great mutiny of 1857. On May 31, the city was a scene of rapine and bloodshed. The native garrison without any European troops to overawe them, rose

against their officers, and seized the public treasure. They murdered every European who had not the means of escaping. But fortunately, from a suspicion of the outbreak, the ladies and children of the company's servants, both civil and military, had previously been sent off in safety. B. was recovered by Sir Colin Campbell, afterwards Lord Clyde, 1858, May. Pop. (1901) 131,208.

The dist. BAREILLY is bounded e. by Oude and Nepaul; 1,614 sq. m.; pop. over 1,200,000.

BARÈRE DE VIEUZAC, *bâ-rair' dèh ve-èh-zâk'*, BERTRAND: 1755, Sept. 10—1841, Jan 14; b. Tarbes, France. He became an advocate in the court at Toulouse. After acting as a deputy in the national assembly, the department of the Hautes-Pyrénées, elected him to the national convention 1792. He is said to have been naturally in favor of moderate measures, but he was easily overawed by the influence of the party of the Mountain, with whom he generally acted, and whom he supported by his eloquence, which was so flowery and poetical in style that he came to be designated the Anacreon of the guillotine. He was president of the convention when the sentence was passed upon Louis XVI. He rejected the appeal to the people, and gave his vote with these words: 'The law is for death, and I am here only as the organ of the law.' His natural mildness warring with the instinct of self-preservation, made him alternately a supporter of merciful measures and an advocate of the guillotine, and his whole public conduct betokens selfishness rather than patriotism or humanity. After the death of Robespierre, in which he had concurred, B. nevertheless proposed the continuation of the Revolutionary Tribunal, for which he was denounced by Lecointre, and afterwards impeached and sentenced to transportation; his sentence, however, was not carried into effect, and he partook of the general amnesty of the 18th Brumaire. He was elected deputy to the chamber, 1815, during the Hundred Days. After the second restoration, he was banished from France, and went to Brussels, where he was busied in literary work, till the revolution of July permitted his return. In 1832, he was once more elected a deputy by the department of the Hautes-Pyrénées; his election, however, was annulled, on account of errors of form, whereupon the government called him to be a member of the administration of that department, which office he held until 1840. He bestowed upon the younger Carnot his *Mémoires*, which have been published (2 vols., Par. 1842). His many other political and historical writings are now of no importance.

BARETTI, *bâ-rèt'è*. JOSEPH: 1716–89; b. Turin; d. London: Italian writer. He was intended for the law, but turned to literature. In 1751, he established himself as a teacher of Italian in London, where, 1757, he published the *Italian Library*, giving an account of the most eminent Italian authors and their works. He was about this time appointed secretary for the foreign correspondence of the Royal Academy. In 1762, he published an account of his

BARFLEUR—BARGAIN AND SALE.

travels through Portugal, Spain, and the south of France to Italy, in *Lettere Famigliari*, which, with additions and a new title, were republished in England. B. then went to Italy, and published at Venice a journal called the *Literary Scourge*, which brought upon him many prosecutions. On his return to England he published, among other works, an Italian grammar, and an Italian and English dictionary, which have since gone through many editions. One evening he became involved in a street brawl in London, and stabbed with his penknife a man, who died soon after. B. was tried for murder, made his own defense, and was acquitted—Dr. Johnson, Burke, and Garrick testifying to the excellence of his character.

BARFLEUR, *bar'flèr'*: seaport town of France, dept. of La Manche; about 15 m. e. of Cherbourg; now a place of little importance, but noteworthy as being the port whence, according to report, William the Conqueror set out on his invasion of England. In the 13th and 14th c., B. was twice pillaged by the English.

BARGA, *bàr'gá'*: town of Italy, province of Lucca, 25 m. n.e. from Pisa.

BARGAIN, n. *bàr'gèn* [F. *bàrguigner*, to haggle: It. *baratta*, strife; *baratto*, exchange—from the syllables *bar*, *bar* (see BARBARIAN)]: *originally*, the noise or chaffer employed between individuals in buying and selling; an agreement; a cheapened commodity: V. to make a contract or agreement; to sell on speculation. BARGAINING, imp. *bàr'gèn-ìng*. BARGAINED, pp. *bàr'gènd*. BARGAINEE, n. *bàr'gèn-è'*, he who accepts a bargain. INTO THE BARGAIN, something allowed in addition to what is strictly due; besides; to boot.—SYN. of 'bargain, n.': agreement; contract; covenant; compact.

BAR'GAIN AND SALE, in Law: a mode of conveyance whereby property, real and personal, may be assigned or transferred for valuable consideration. It finds a chief place in law-books in connection with the conveyance of *real estate*. In regard to personal estate, *assignment* (q. v.) appears the more appropriate, as it is the more usual term. B. and S., then, may be described as a conveyance, in the way of a real contract, by means of which property in lands and tenements, whether that property be in possession, remainder, or reversion, is conveyed from one person to another. In its terms it consists of a B. and S. by the seller to the intended vendee for money. See LEASE and RELEASE

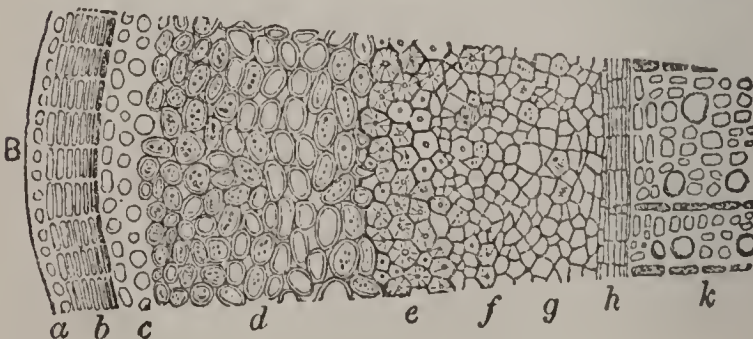
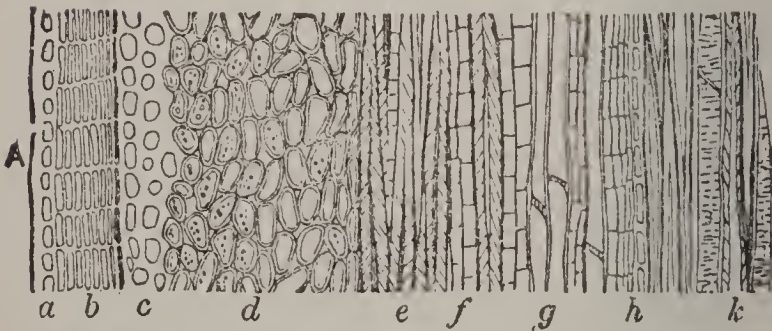
No particular form of words is essential to the validity of a B. and S.; 'bargain and sell' are the words of transfer ordinarily used. But other words will have the same effect, and the distinctive character of the conveyance is determined by the consideration on which it is founded. This consideration, however, is held to be a mere matter of form, and sufficiently complied with if the conveyance purport to be so founded. To this end, any trivial sum may be inserted in the conveyance, though the consideration which really passes between the parties be of larger amount; or even though it be, in fact, not of a pecuniary nature. It



State Barge.



Barge-board of 15th Century, Ockwells, Berkshire.



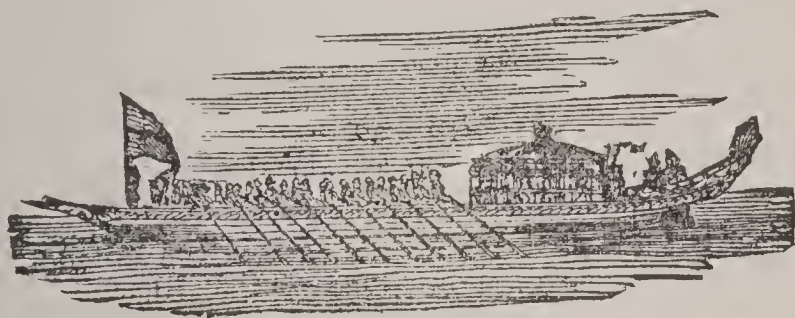
A. Longitudinal section of Bark of Dicotyledon (Alder): *a*, epidermis with cuticle; *b*, cork cells; *c*, thickened cells; *d*, green cellular layer of loosely placed cells containing chlorophyll; *e*, hard bast fibres; *f*, thin-walled cells of soft bast; *g*, vessels with sieve plates of soft bast; *h*, cambium; *k*, wood with fibres and dotted vessels. B, The same in transverse section.

BARGA PASS—BARGE-COUPLES.

is also immaterial whether the sum so inserted be actually paid or not.—Stephen's *Commentaries*, vol. i. pp. 535–537. See CUSTOS ROTULORUM: POSSESSION OF PROPERTY: REMAINDER: REVERSION: INDENTURE.

BAR'GA PASS: in the Himalaya; n. lat. $31^{\circ} 16'$, e. long. $78^{\circ} 19'$; the highest part of it about 15,000 ft. above the sea.

BARGE, n. *bārj* [mid. L. *barga*, a boat: O.Fr. *barge*, a boat: prob. a variant of *barque*]: sailing vessel of any kind (*Chaucer*, *obs.*). In modern usage, B. is a two-decked boat for carrying freight or passengers, having itself no sails or other mode of propulsion, but designed to be towed by a steamer or tug-boat (*U. S. usage*): a flat-bottomed boat for conveyance of goods between vessels in a harbor and the shore, or for canal and river traffic. B. in former times, was a vessel of state, often highly decorated with banners and draperies, sumptuously furnished, propelled by a strong corps of rowers, and used for conveyance of sovereigns and other princes, high magistrates, ambassadors, etc., and to grace pageants. In the United States, the name is given to a boat used by racing crews when training or practicing—commonly a long, narrow, lap-streak boat, wider and stronger than a racing shell. In new England, especially in some parts near the coast, the term is applied to a large wagon for conveyance of passengers from a railroad station or a steamboat landing to hotels—an omnibus.



Barge—Royal.

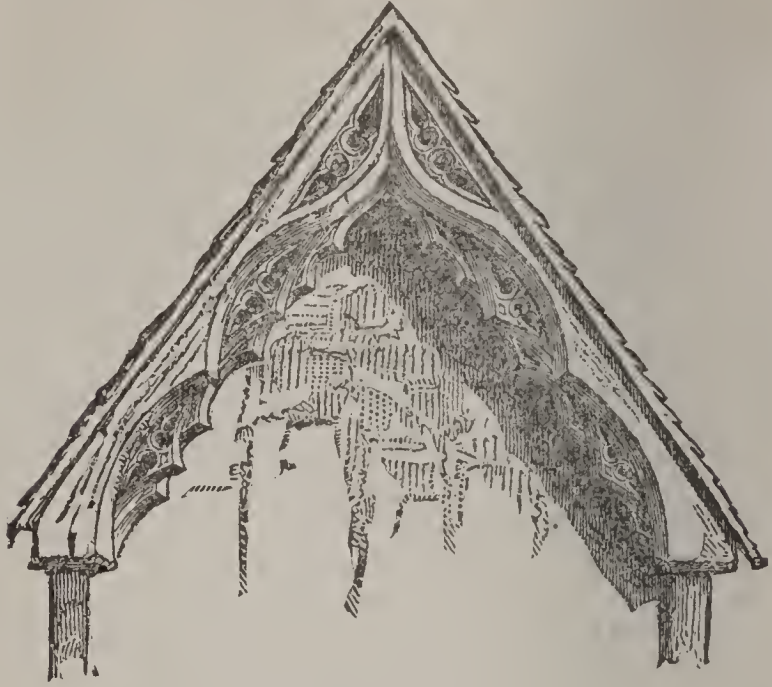
BARGE, *bār'jā*: town of the compartimento Piedmont, province of Cuneo, Italy, 30 m. s.w. of Turin, at the foot of Mt. Mombracco. When Carlo Alberto, after the battle of Novara, 1849, Mar. 13, abdicated the throne of Sardinia, he assumed the title 'Count of Barge.'—Pop. about 2,000.

BARGE, *bār'jā*: ancient town of Piedmont, province of Cuneo, 30 m. s. w. of Turin. There are manufactories of fire-arms, and slate-quarries, and a brisk general trade. Pop. abt. 2,000.

BARGE-COUPLES, *bārj*- [*barge*, a supposed corruption of *verge*: Ger. *bergen*, to protect]: in *arch.*, pieces of wood mortised into others to strengthen a building. **BARGE-BOARD**, an inclined projecting board, often richly orna-

BARGEER—BAR HARBOR.

mented, at the gable of a building to hide the timbers of the roof. **BARGE-COURSE**, the part of the tiling projecting beyond the principal rafters.



Barge-board.

BARGEER, n. *bâr-gēr'* [Pers.]: in Indian native armies, a trooper who does not find his own horse.

BARGHAIST, n. *bâr'gāst*, or **BARGUEST**, *bâr'gēst* [Eng. *bar*, a gate; *ghaist*, *guest*, a ghost]: in *myth*, a demon with frightful teeth, long claws, and staring eyes, believed to have its habitat in Yorkshire, said to appear near gates and stiles.

BARHAM, *bâr'am*, **RICHARD HARRIS**: 1788–1845, June 17; b. Canterbury, Eng.: author of the *Ingoldsby Legends*. He succeeded to the manor of Tappington while yet a child, and was sent to St. Paul's School, but had his school life interrupted, and his right arm crippled for life, by being upset in the Dover mail. In 1807, he entered Brasenose College, Oxford, was ordained 1813, and appointed 1821 minor canon of St. Paul's Cathedral, and three years later a royal chaplain. His first contributions were sent to *Blackwood's Magazine*, but with the commencement of *Bentley's Miscellany*, 1837, he began his series of inimitable burlesque metrical tales under the pen-name of Thomas Ingoldsby. They were first collected into a volume 1840, and the third series was published 1847 with a brief memoir of the author by his son. The *Ingoldsby Legends* at once became popular from their droll humor, fine irony, varied and whimsical rhymes, and quaint out-of-the-way learning. B. was a frequent contributor to the *Edinburgh Review* and *Literary Gazette*, and wrote a third of the articles in Gorton's *Biographical Dictionary*, besides a novel in 3 volumes entitled *My Cousin Nicholas*. He died in London. His *Life and Letters* appeared in 2 vols. in 1870.

BAR HARBOR, Me.: see **MOUNT DESERT**.

BARI—BARILLA.

BARI, *bá're* (ancient *Barium*): city in the kingdom of Italy, cap. of the province of B.; on a peninsula in the Adriatic; lat. $41^{\circ} 8' \text{ n.}$, long. $16^{\circ} 53' \text{ e.}$; about 140 m. n. n. e. from Naples. It is strongly fortified, and defended by a massive old castle of Norman origin, nearly a mile in circumference. The city is divided into the old town and the new. The streets, with few exceptions, are narrow and gloomy. B., which is the see of an archbishop, has manufactories of cotton, silk, linen, soap, etc., and carries on an active export-trade in oil, corn, and fruit, with Trieste and Dalmatia. Its harbor does not admit of the entrance of large vessels; but its quay and roadstead are good. It has some fine ecclesiastical structures, the most notable of which is the priory of St Nicholas, a noble specimen of the Lombard style of architecture, founded 1087, and liberally endowed by the brothers Guiscard. Within the walls of this building, Urban II., 1098, held a council of Greek and Latin bishops, with the view of settling the differences between the two churches; and Roger II. was here crowned king of Sicily. The priory contains some interesting monuments and relics, the most remarkable of which is the tomb of Bona Sforza, Queen of Poland, who died in the castle, 1557. B., is one of the cities believed to have been founded by Iapyx, son of Dædalus. Its coins show it to have been a place of considerable note among the Greeks as early as B. c. 3d c. The Romans appear to have held it in but little repute; but it rose in esteem when, in the 10th c., it fell into the hands of the Greek emperors, who made it the capital of Apulia, and the residence of a viceroy. It was twice taken in the 11th c. by the Normans, who added to its strength and importance. Pop. (1891) 72,000; (1901) 77,478.

The province of BARI has 2,280 sq. m.; pop. (1901) 827,698.

BARIDIUS, n. *bár-îd'î-ûs* [Gr. *baris*, a kind of flat boat; *eidos*, form, appearance]: genus of beetles belonging to family *Curculionidæ*. The species are generally small cylindrical insects, black and covered with a whitish down. They feed on aquatic plants.

BARIGAZZO, *bá-rê-gát'so*: village of the province of Modena, Italy; remarkable for the streams of fire several feet high which issue out of the soil in the vicinity, and continue to burn for days without intermission.

BARILLA, n. *bă-rî'llă* [Sp. *barrilla*]: an impure carbonate of soda, procured from plants which grow in salt marshes or other places near the sea, and which forms a considerable article of commerce, being used in the manufacture of soap and of glass, and for other purposes in the arts. The greatest quantities of B. are produced in Spain and the Balearic Islands; but the Canary Islands, Italy, and France, contribute a part. It is procured by burning the plants, much in the same way that sea-weeds are burned upon the coasts of Scotland to procure kelp. The Spanish B. is most esteemed, especially that produced near Alicante, which is obtained chiefly from the *Salsola sativa*, a plant of the nat. ord. *Chenopodiaceæ*. This plant is there cultivated in grounds close by the sea, embanked on the

side nearest it, and furnished with floodgates, through which the salt water is occasionally admitted. It is cut in September, dried in small heaps, and then burned in a hole in the ground. Other species of *Salsola* (Salt-wort), as *S. Tragus* and *S. Kali* (the latter, a common native of the shores of Britain), are also burned for B., although they yield it in smaller quantity than *S. sativa*. B. is made in France from *Salicornia herbacea* or *annua* (Glass-wort), another of the *Chenopodiaceæ*, plentiful also in salt-marshes on the shores of Britain and other parts of Europe. The manufacture of B. has greatly declined, from the fact that soda can now be made artificially from common salt. See SALT-WORT.

BARINAS: see VARINAS.

BA'RING, ALEXANDER: see ASHBURTON, LORD.

BARING, Sir FRANCIS THORNHILL: see NORTHBROOK, LORD. (1790-1866).

BARING, THOMAS GEORGE: see NORTHBROOK, LORD, (b. 1826).

BARING BROTHERS & COMPANY, *bā'ring*: financial and commercial house in London. The family of Baring was founded in England by John Baring, German weaver, who started a small business at Larkbear, near Exeter, Eng., in the first half of the 18th c. His two sons, Francis and John, established the house of B. B. & Co. Francis became a director of the E. India co., and by the favor of Pitt was created baronet 1793. When he died, 1810, he was reckoned the first merchant in Europe, and had amassed a fortune of nearly \$35,000,000. The firm were for many years the financial agents of the Argentine Republic. Through their instrumentality, a very large amount of English capital was expended in the republic; of the firm's own capital a very large amount also was invested in Argentine securities. The Russian govt., learning of grave financial troubles in the Argentine Republic, withdrew \$15,000,000 from the Barings 1890, Nov., and shortly afterward withdrew \$15,000,000 more; thus the firm was threatened with ruin. The banks throughout England and Scotland (chiefly the Bank of England, aided by the Bank of France) came to their rescue, and saved them. But B. B. & Co. had to transfer their business and interests to a company styled Baring Brothers (Limited). The new company had a capital of £1,000,000 (\$5,000,000), divided into shares of £500 (\$2,500) each. It took over, and carries on, the business of bankers, merchants, and financial agents formerly carried on under the style of Baring Brothers & Company.

BARING-GOULD, *bā'ring-gôld*, SABINE: clergyman of the Church of England, and voluminous author: b. Exeter, England, 1834. He graduated at Clare College, Cambridge, 1856; was appointed incumbent of Dalton, Thirsk, 1869, and rector of E. Mersea, Colchester, 1871: succeeded to the family property 1872; and 1881 became rector of Lew-Trenchard, Devon, where the family has

BARIS—BARIUM.

been seated nearly 300 years. His publications include: *Paths of the Just* (1854); *Iceland: its Scenes and Sagas* (1861); *Post-mediæval Preachers* (1865); *Curious Myths of the Middle Ages* (1st series 1866, 2d 1867); *Curiosities of Olden Times* (1869); *The Origin and Development of Religious Belief* (vol. i. 1869, ii. 1870); *The Golden Gate* (1869-70); *Lives of the Saints*, 15 vols. (1872-77); *Some Modern Difficulties*, sermons (1874); *The Lost and Hostile Gospels* (1874); *The Seven Last Words* (1884); *The Passion of Jesus* (1885); *The Birth of Jesus* (1885); *The Trials of Jesus* (1886); and stories: *The Silver Store* (1868); *In Exitu Israel* (1870); *Mehalah*; *John Herring*; *Court Royal*; and *Grettir, the Outlaw* (1889). He was also editor of the *Sacristy*, an ecclesiastical and literary review, 1871-73.

BARIS, n. *bār'is* [Gr. *baris*, a row-boat]: in *Egyptian antiq.*, a flat-bottomed boat for merchandise on the Nile: in *art*, the sacred boat represented as conveying a god or some sacred object: in *entom.*, genus of beetles belonging to the family *Curculionidæ*. The species feed upon the dead parts of trees. *B. liguarius* preys both in the larva and the perfect state on the elm.

BARITA, *ba-rī'ta*: genus of large Australian birds, placed by some ornithologists in the family of Shrikes (q.v.), (*Laniadæ*), and by others in that of Crows (q.v.), (*Corvidæ*). The bill is large, conical, scarcely curved, the base of it extending remarkably backward on the forehead. The best known species is the Piping Crow, or Piping Grakle, or Jar-ra-war-nang of N. S. Wales (*B. Tibicen*). It preys on small birds, is gregarious, has a melodious voice, is easily tamed, soon learns to whistle tunes, and has great power of mimicking the voices of other birds.

BAR'ITONE: see BARYTONE.

BARIUM, n. *bā'rī-ūm* [Gr. *barus*, heavy], (sym. Ba, at. wt. 137): the metal present in heavy spar (sulphate of baryta) and baryta. It was discovered 1808 by Sir Humphrey Davy and regarded as a white metal, until the researches of Dr. Matthiessen demonstrated that it possesses a yellow color. As yet, the metal B. has not been obtained in mass, but only as a powder. It decomposes water readily at ordinary temperatures, and exposed to the air, quickly combines with oxygen, forming the *oxide of B.* (BaO), or Baryta (q.v.). The latter substance is an earth resembling ordinary caustic lime, and may otherwise be prepared by adding finely divided black oxide of copper (CuO) to a solution of sulphuret of B. (BaS), when the sulphuret of copper (CuS) is thrown down, and the baryta (BaO) is left in solution. On evaporation, the water of solution passes off as steam, and leaves the solid earthy-looking substance, baryta. A third mode is by decomposing the crystallized nitrate, Ba(NO₃)₂, by heat in a porcelain crucible; the nitrate is then resolved into nitric peroxide, oxygen, and baryta. *B. sulphide*, BaS, is obtained when the sulphate, BaSO₄, in powder is mixed with finely-pulverized coal, and the whole being placed in a crucible, is raised to

BARK.

a red heat in a furnace. The result is that 4 atoms of the carbon (C) of the coal carry off the 4 atoms of oxygen in the sulphate of B. as carbonic oxide (CO), while the B. united solely with sulphur is left behind as the sulphide of B. (BaS). The *Chloride of B.* is prepared by adding hydrochloric acid (HCl) to a solution of the sulphide of B. (BaS), when hydrosulphuric acid (H₂S) escapes, and chloride of B. remains behind, and on evaporation of the liquid, is obtained in crystals.

BARK, n. *bárk* [Dan. *bark*: Icel. *börkr*]: the outside covering of a tree: V. to peel or strip off bark. BARK'ING, imp. BARKED, pp. *bárkt*. BARK'ER, n. one who. BARK-ERY, n. *bárk'ér-i*, a tan-house. BARKY, a. *bár'kĩ*, containing bark; covered with bark. BARK-BOUND, a. bound by means of the bark; having the bark so firmly set as to constitute a restraint upon growth.

BARK, n. *bárk* [AS. *beorcan*, to bark: Icel. *barkr*, the throat; *berkja*, to bark, to bluster]: the peculiar noise or clamor of a dog: V. to make the noise of a dog. BARK'ING, imp. BARKED, pp. *bárkt*. BARK'ER, n. one which.

BARK, or BARQUE, n. *bárk* [F. *barque*; mid. L. *barca* or *barga*, a boat]: a small ship; a ship that carries three masts, having the mizzen rigged fore and aft. See BARQUE.

BARK (*cortex*): in phanerogamous or flowering plants, the external covering of the stem. It is composed of layers of cellular tissue, while the woody stem, to which it forms a sort of sheath, is vascular. In endogenous plants (palms, etc.), there is not, in general, a very marked line of separation between the B. and the vessels or vascular bundles of the stem, so that these plants are generally, though incorrectly, said to have no bark. It is in exogenous plants, and especially in perennial woody stems, that the development of B. is fullest, and the distinction between wood and B. most marked. The outermost layer of the B. of exogenous plants is the *epidermis* (q.v.), which however, is in general seen only in annual stems, and in the youngest parts of woody stems; peeling off, as the stem becomes older, with the outer layers of the true B. Beneath the epidermis is the true B., of which the outer layer is called the *epiphylæum*, or the corky layer, and consists of cells, usually rectangular and flattened, with thick walls. The next inner layer of the B. is called *mesophylæum*, or green layer, and is generally formed of a cellular tissue of roundish cells with thin walls. These layers are sometimes very distinctly separated from one another, and sometimes pass gradually into one another; sometimes there is merely a continuous cellular tissue. Within the true B. is a very distinct layer, the inner B., *liber* [Lat.] or *endophylæum* [Gr. inner bark], also frequently called Bast, which is composed of bundles of woody fibre or vascular tissue mixed with cellular tissue. The layer of Cambium (q.v.) is regarded often as belonging to the inner B., but belongs rather to the vascular part of the stem. In the inner B. are sometimes found cells containing a milky juice, as in the *Apocynaceæ*, or vessels for a milky juice, as

in the common fig. The combined strength and flexibility of the fibres of the inner B. render it useful for various purposes. See FIBRE and BAST. In the true B., the peculiar juices and most characteristic substances elaborated by the plant are very generally found, for which reason that part is often of the greatest importance in medicine and the arts. The B. of many trees abounds in *tannin* or *tannic acid* (q.v.).

The B. of a stem or branch not more than one year old exhibits only a cellular integument or epidermis with an interior lining of woody fibre—the inner B.; but new layers are added from year to year, the B. as well as the woody stem being increased from the cambium, the mucilaginous layer which is interposed between them, and which particularly abounds in spring, when the separation of the B. from the stem is most easy. The annual layers, however, cannot long be distinctly recognized in the B. as in the wood; and in the older portions of woody stems, the outermost parts of the B. become desiccated and lifeless, and are in general gradually thrown off. On this account, those mosses, lichens, and other plants which attach themselves only to the outermost layer of the B. of trees, and derive their nourishment from it, cannot be regarded as true parasites, as they are in no degree supported by the juices of the stem, but only consume and remove external matter already destitute of life. The B. of some trees is remarkable for the thickness which it acquires, as that of the cork-tree, in which the *epiphloeum* is formed of many layers of cells. The outer parts of thick barks very often crack, to admit of the expansion of the stem within; in the lace-bark tree of the West Indies, the fibres of the inner B. become partially separated as it is distended, forming lozenge-shaped meshes arranged with beautiful regularity.

The connection between the cellular tissue of the B. and that of the pith in the center of the tree is continually maintained by means, in exogenous stems, of the medullary rays. See EXOGENOUS PLANTS: PITH. The B. is a protection to the young and tender wood; it appears also to exercise functions analogous to those of the leaves, which, when young, it resembles in its color, and which are regarded as dilatations of it, so that it has been called the 'universal leaf' of a plant.

BARK, in Medicine, etc.: see ANDIRA (*Cabbage B.*, *Surinam B.*): ANGOSTURA B.: CARIBBEE B. (*Jamaica B.*, *St Lucia B.*, *Piton B.*): CASCARILLA (*Cascarilla B.*, *Eleutheria B.*): CINCHONA (*Cinchona B.*, *Peruvian B.*, *Jesuits' B.*, *China*, *Cascarilla*, *Arica B.*, *Calasaya B.*, *Carabaya B.*, *Huamaliés B.*, *Huanuco B.*, *Jaen B.*, *Loxa B.*, *Maracaibo B.*, *Ash B.*, *Crown B.*, *Silver B.*, *Yellow B.*, *Tan B.*, etc.): CLOVE B.: COPALCHE B.: CULILAWAN B.: WINTER'S BARK.—B. mentioned without any prefix, is always Cinchona, otherwise called Peruvian or Jesuits' B.

Bark, in Dyeing, Tanning, and other purposes in the arts: see under names of the trees that produce it.

BARK, FOR TANNING: bark which abounds in tannic

acid; though the B. of many trees is capable of being used for tanning (q.v.). Oak B. is principally used in Britain, and throughout Europe; also in N. America, although that of America is obtained from species of oak different from the European; in Spain, the inner layer of the B. of the cork oak, or cork-tree, is employed, and it is to some extent imported into Britain for the use of tanners. The B. of the chestnut is also much esteemed. Larch B. and willow B. are used in preparing some kinds of leather. The B. of the birch and that of the alder also are employed; birch B. being, however, more esteemed for steeping fishermen's nets and cordage, to preserve them from rotting, than for the preparation of leather. Different species of *Acacia* (q.v.) and of *Eucalyptus* (q.v.) furnish barks for tanning in Australia, some of which have, to a small extent, become articles of commerce.

The *barking* of trees can be accomplished with facility only in spring, when the sap has begun to circulate. The tree being felled, the rough external lifeless parts of the B. are removed as useless, by means of a sharp instrument called a *scraper*; the smaller branches are cut into lengths of about two feet, and their B. is loosened by beating with a mallet, and easily taken off; the B. of the trunk and main branches is cut through by a chisel-like instrument, called a *barking-iron*, into similar lengths, each of which is divided longitudinally, and finally stripped off by the aid of mallets, chisels, etc. The B. is sometimes dried in sheds, being placed on narrow shelves or frames in such a way that there may be a very free circulation of air about it; sometimes in the open air, when it is very generally made to rest in a sloping position against trunks of trees placed horizontally at a little distance from the ground, the larger pieces of B. being placed so as to protect the smaller both from sun and rain. Great care is necessary in the drying of B., as it is much spoiled if allowed to get mouldy, and is liable to suffer injury from rain or from the exposure of its inner surface to the sun.—Oak and birch B. are usually about equal in their price, which, however, varies very much. Larch B. is much less valuable; it is also of much greater bulk in proportion to its weight. The B. is a very important source of revenue from forests.

BARKAL, or JEBEL BARKAL, *jēb'el bar'kal*: a singular sandstone rock in Nubia; lat. $18^{\circ} 31'$ n., long. $31^{\circ} 46'$ e., about a mile from the right bank of the Nile. It is quite isolated, perpendicular on the side facing the river, and very steep on all. It is about two m. in circumference at the base, and 400 ft. in height, its summit forming a broad plateau. Between it and the river are the remains of some magnificent temples, the two principal ones being known as the Typhonium, and the Great Temple, one of the largest monumental ruins of Nubia. The ancient city of Napata is supposed to have been in the vicinity. The two red granite lions, now in the Egyptian Room of the British Museum, were brought from here in 1832 by Lord Prudhoe.

BARK BEETLE, or BARK-CHAFER: name common to many of the large family of coleopterous insects (q. v.), called by entomologists *Xylophaga* [Gr. wood-eaters]. They all are small, and generally of uniform color; they have hard bodies, and short, often club-shaped antennæ. Most of the family live in wood or other vegetable substances, as mushrooms, dried plants in herbariums, etc., and some of them are extremely injurious to living trees. Those called B. beetles or bark-chafers bore holes in the bark, and deposit their eggs in the inner bark, in which the larvæ excavate pathways, often causing the death of the tree. One species in particular, sometimes called the common Bark-chaffer (*Tomicus typographus*), and sometimes the Typographer Beetle, from the figure of its burrows, has from time to time appeared in extraordinary



Tomicus typographus.

a, natural size; *b*, insect magnified; *c*, galleries made by the insect.

numbers, ravaging the forests of Germany. In 1783, it caused the death of a million and a half of pines in the Harz Forest alone. This insect is mentioned in some of the old German liturgies under the popular name of 'the Turk,' which its dreaded ravages obtained for it.

BAR'KER, EDMUND HENRY: 1788, Dec. 22—1839, March 21; b. Hollym, Yorkshire; studied at Cambridge. Besides editions of several Latin classics, and numerous contributions to periodicals, particularly to the *Classical Journal*, he undertook a revision of Stephens's *Thesaurus Linguae Græcæ*. This gigantic work, violently assailed in the *Quarterly Review* by Blomfield, was pub. by Valpy, London (13 vols., 1816–28). In 1812, appeared the first volume

of his *Classical Recreations*. He supplied materials for Sturtz's *Etymologicum Guidanum*; translated, among other German works, Buttman's *Greek Grammar for Schools*; and collected the mass of anecdote and criticism relative to his friend Dr. Parr (pub. in 2 vols., 1828, 9), under the title of *Parriana*, a work well-nigh unreadable, from its superabundant and ill-digested matter. He died in London in extreme poverty.

BARKER, bâr'kér, FORDYCE, M.D.: 1818, May 2—1891, May 30; b. Wilton, Me.: surgeon. He graduated at Bowdoin College 1837, afterward studying in Harvard Univ. and at Edinburgh, completing his education in Paris 1844. The next year he began practicing medicine in Norwich (1845), filling at the same time the chair of midwifery in the medical dept. of Bowdoin College. From 1850 to 57 he was prof. of midwifery in the New York Medical College, and from 1860 in Bellevue Hospital Medical College, New York. In 1856 Dr. B. was made pres. of the New York State Medical Soc., and in 1882 pres. of the New York Acad. of Medicine. Among his works are: *On Sea-Sickness* (1870) and *On Puerperal Diseases* (1872).

BARKER, GEORGE FREDERICK. M.D.: 1835, July 14—: b. Charlestown, Mass. After an academic education, he was apprenticed to a philosophical-apparatus maker in Boston. At the age of 21 he entered the Yale (Sheffield) Scientific School, and two years later graduated, having filled the post of assist. in chemistry under Prof. Silliman, 1857. In 1860 he was assist. to the prof. of chemistry in Harvard Medical College. The next year he was prof. of nat. sciences in Wheaton (Ill.) College, and a year later was acting prof. of chemistry in the Albany Medical College, where also he studied medicine, graduating 1863, when he became prof. of nat. sciences in the Western Univ. of Penn. at Pittsburgh. In 1865 he was made demonstrator of chemistry in the medical dept. of Yale, and 1866 occupied Prof. Silliman's chair in his absence. In 1867 he was placed in charge of the dept. of physiological chemistry and toxicology at Yale. Since 1873 he has been prof. of physics at the Univ. of Penn. at Philadelphia. In 1881 he was one of the United States commissioners to the International Electrical Exhibition in Paris, when the French govt. decorated him with the Legion of Honor, with rank of commander. In 1884 he was appointed by the pres. on the U. S. Electrical Commission. He has achieved repute also as a toxicologist. Dr. B. has delivered many lectures and addresses; was pres. (1879) of the Amer. Assoc. for the Advancement of Science, editor of the *Journal of the Franklin Institute* 1873-5, and for many years one of the editors of the *American Journal of Science*. He has also, for a number of years, edited the *Annual Record of the Progress of Physics*, in the Smithsonian reports. He has written many important papers for scientific periodicals; and his *Text-Book of Elementary Chemistry* (1870) has been transl. into French and Japanese.

BARKER—BARKER'S MILL.

BARKER, JACOB: capitalist: 1779, Dec. 7—1871, Dec. 26: b. on Swan Island, Me.; of Quaker parentage. He received an early training for a business life, and before he was of age was engaged in heavy commercial undertakings in New York and owned five trading ships, but he failed disastrously, 1801. Recovering from this blow through fortunate contracts with the govt., he grew rapidly rich, and 1812 undertook to raise a loan of \$5,000,000 for the govt. He was one of the original members in the Tammany soc. in New York, was elected a N. Y. state senator, established the Exchange bank in Wall st., New York, which failed 1819, and also organized a life and fire insurance co., which met the same fate. His unusual methods in finance having aroused bitter antagonism among financiers, he was brought to trial for fraud on account of his connection with the latter institution, but the indictment was quashed. In 1834 he moved to New Orleans, where he was admitted to the bar, was prominent in business and in politics, and accumulated a large fortune, of which the civil war deprived him. He died in Philadelphia. See 'Incidents,' etc., in his life (New York, 1855).

BARKER'S MILL, *bâr'kêrz* (Fr. *Roue à réaction*, Ger. *Segner's Wasserrad*): a wheel moved by the weight and the centrifugal movement of water, invented by Dr. Barker towards the end of the 17th c. It is repre-

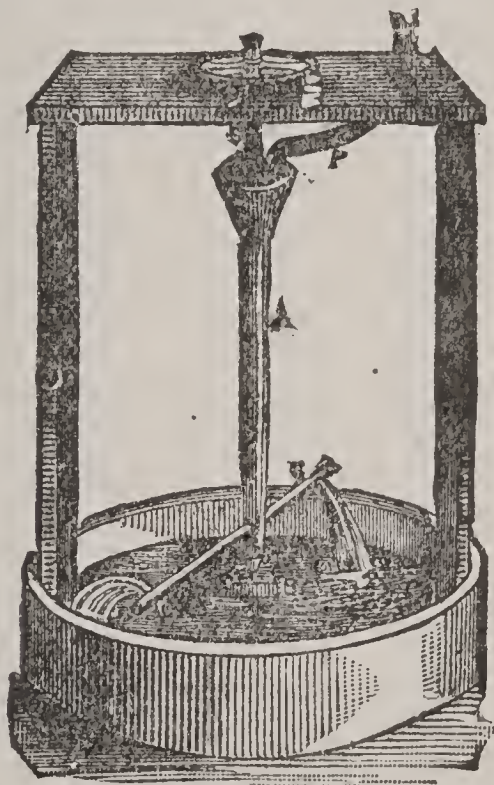


Fig. 1.

sented in its simplest or typical form in fig. 1. A is a wide metal pipe, resting at its lower end by the steel spindle T, on a metal block B, and kept in a vertical position by the spindle S, at its upper end, which passes through the frame of the machine, so that it can

BARKER'S MILL.

easily revolve round its axis. Near its lower end, two smaller pipes or arms, C, C, are inserted, which project horizontally from it, and these have each, at the outer extremity, a hole cut vertically in them, opening towards opposite sides. The water is supplied by the pipe P, which opens over a funnel-like widening on the upper part of A, and the quantity is so regulated that while the pipe A is kept nearly full, no more is admitted than issues from the lower orifices. The reaction caused by the water gushing from the arms, forces them backwards, and gives to the whole machine a rotatory motion. This reaction is much the same as is seen in the recoil of a gun when fired, or in the pushing back of a small boat by the foot on stepping ashore. It may be also thus explained: Suppose that the arms were closed all round, the water would press against the sides with a force proportional to the height of the water in the pipe A, and the pressure against any particular surface of the side would produce no motion of the arm, because an equal pressure is exerted in a contrary direction by a corresponding surface opposite to it. Now, if one of these surfaces be cut out, the pressure against the other being uncounteracted, forces the arm in the opposite direction to that of the side in which the hole is made. This being done to both arms on opposite sides, two equal pressures are produced, which conspire in generating the same motion of rotation. As soon as motion ensues, centrifugal force comes into play, which, throwing the water out towards the ends of the arms, increases the rapidity of its discharge, and also its reacting power. When the wheel is in action, the water thus acts under the influence of two forces—one being the pressure of the column in A, and the other the centrifugal force generated by the rotation of the wheel itself. The motion of the wheel is transmitted by the spur-wheel fixed to the spindle S, to the machinery which is to be driven by it, or, in the case of a grain-mill, the spindle passes directly through the lower millstone, and is firmly fixed into the upper one.

The power is manifestly increased by heightening the water-column, or by lengthening the arms—the former increasing the pressure of the water, and the latter increasing the leverage at which this pressure acts. In the mill shown in the figure, the column in A cannot be advantageously heightened, for the higher it rises, the greater must be the weight which the conical spindle T has to sustain, and the greater, consequently, becomes the friction. It is from this circumstance that such mills are found, in practice, to yield but a small mechanical effect—the friction consuming too large a proportion of the work of the wheel. Hence, in the reaction-wheels now in use, the original B. M. has been so modified as to allow of the water being conducted from the reservoir below the arms instead of above. This is effected by making the vertical pipe revolve below in a stuffing-box at its junction with the conduit, and above, by a pivot moving in the fixed frame. By this arrangement, the friction attending the rotation is reduced to a minimum, for, not only is the weight of the water placed out of ac-

BARKING—BARK-STOVE.

count, but also a large proportion of the weight of the wheel itself, which is borne by the upward pressure of the water. The mechanical performance of such wheels is said to be highly satisfactory, producing with a limited supply of water falling from a considerable height, a useful effect, hardly to be obtained by any other contrivance. The power of these machines may be also increased by using curved (fig. 2) instead of straight arms. With straight arms, a considerable loss of force is incurred by the sudden change of the direction of the current when it leaves the arm, which loss is not incurred to the same extent with curved arms, in which the direction is changed gradually. In Whitelaw's Mill (called the Scottish turbine), the form of B. M. usual in Scotland,



Fig. 2.

there are three instead of two curved arms of this description. Considerable difference of opinion still exists as to the merits of B. M., some considering it as the most perfect way of applying water-power, and others putting it in the same rank as an under-shot wheel, with the same water-supply. Of late years, it has been more extensively employed than formerly. See WATER-POWER.

BARKING: town of Essex, on the left bank of the Roding, abt. 2 m. above its junction with the Thames, five m. n.e. of London. The mouth of the Roding is often called B. creek. *Barking Abbey* was one of the richest nunneries in England. It was founded about 677 by St. Erkenwald, Bp. of London, whose sister St. Ethelburga, was the first abbess. In 870, it was burnt by the Danes, but was rebuilt. Scarcely more than the gate-house now remains. The Abbess of Barking was one of four ladies who held the rank of baroness in right of their office. Several queens of England assumed this office. Pop. of town. (1891) 14,301.

BARKING-BIRD, n.: a bird—the *Pteroptochos Tarnu*—found in the islands of Chiloe and Chonos, off the west of Patagonia. It is called by the natives 'Guid-guid.' Its voice is like the yelping of a small dog.

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BARK-STOVE, in Gardening: a kind of hot-house intended for those plants which require not only the greatest heat, but also a continually moist atmosphere. It derives its name from the use of tanners' bark, for the purpose of producing this atmospheric condition. The bark is placed in a pit, lined and paved with brick, and pots containing tropical plants are sunk in it; by which means the plants not only enjoy a moisture resembling that of their native climates, but the earth around their roots is kept uniformly and moderately heated. The principle of the B. is adopted in pineries, palm-houses, etc., also in forcing-stoves for producing the ordinary fruits and vegetables of temperate climates at unusual seasons. A considerable heat results from the fermentation of tanners' bark, but it is not upon this that its value in the B. chiefly depends.

BARLAAM AND JOSAPHAT—BARLERIA.

BAR'LAAM AND JOS'APHAT: one of the most widely-spread religious romances of the middle ages, relating the conversion of the Indian prince Josaphat by the hermit Barlaam; thereby illustrating the power of Christianity to overcome temptation, and proving its superiority over all other creeds. The story, however, has been discovered to be nothing more or less than a Christianized version of the legendary history of Buddha, agreeing with it in all essentials and many details. The celebrated divine, John Damascene, is regarded as the author of the original Greek MS., which was first published by M. de Boissonade in the 4th vol. of his *Anecdota* (Paris, 1832), and translated into German by Liebrecht (Münst. 1847). But even in the middle ages, a Latin version of this romance had been extensively circulated. About the end of the 15th c., it was often printed in a detached form, and later, it appeared among the works of John Damascene (Paris, 1609). Vincent de Beauvais wove the story into his *Speculum Historiale*. From the Latin version sprang three French poetical versions belonging to the 13th c., as yet unprinted. The Italian *Storia di S. Barlaam* (latest ed., Rome, 1816) may be traced to a Provençal original as early as the beginning of the 14th c. In Germany, Rudolf von Ems derived his poem, *B. and J.*, first printed at Königsberg (1818); later at Leipsic, from the Latin of John Damascene. There is also an Augsburg impression of a prose translation of the ancient Latin text, belonging to the close of the 15th c. The Spanish *Historia de B. y J.*, by Juan de Arze Solorzano (Madrid, 1608), the Polish poetical version, by Kulizowsky (Cracow, 1688), as well as the Bohemian (Prague, 1593), all are borrowed from the Latin; while the Icelandic *Barlaams Saga*, and the Swedish popular tale, *B. och J.*, have a German source. A Norwegian version, printed from an old vellum MS. of the beginning of the 13th c., said to be by King Hakon Sverreson, appeared 1851. This romance has even been rendered into the Tagala language of the Philippines. See *Buddhist Birth Stories*, by Rhys Davids (1881).

BARLACCHI, *bár-lák'kē*, THOMAS: middle of 16th c.: Italian engraver, who reproduced some designs from Raphael, and made besides many monuments and designs in architecture.

BAR-LE-DUC, *bár-lê dük'*, or **BAR-SUR-ORNAIN**, *bár-sūr-or-năn'*: town in the dept. of the Meuse, France. On the Ornain, about 125 m. e. from Paris, with which it is connected by railway, and with the Rhine by canal. There are manufactures of cotton and calico, and a considerable trade in timber (from the Vosges, for the use of Paris) and in iron, wool, and wine. B. has a communal college, normal school, and public library. Its origin dates from the 10th c. Pop. (1881) 17,421; (1891) 18,761.

BARLERIA, n. *bar-lēr'z-a* [after *James Baulier*, a Dominican traveler]: genus of plants, order *Acanthaceæ*, family *Ballerideæ*. Various species are found in India, armed and unarmed, shrubby or herbaceous, with yellow, pink, blue, or white flowers.

BARLES—BARLETTA.

BARLES, *bárl*, LOUIS: 17th c.: a French physician, of Marseille. Among his works are: *Nouvelles découvertes sur les organes des femmes servant à la génération* (Lyon, 1674); *Nouvelles découvertes sur les organes des hommes servant à la génération* (Lyon, 1675). These are translations of the works of Regnier and of De Graaf upon the same subject, enriched with new observations of Van Hoorne and of Vesling.

BARLESIO, or BARLEZIO, *bar-lā'zī-o*, MARINO: 15th c.: Italian historian, b. Scutari, in Albania. He wrote in Latin *The Life and Actions of Scanderberg* (1506), translated into French by Lavardin (1597), and by the Jesuit Duponcet (1706); as well as various other works.

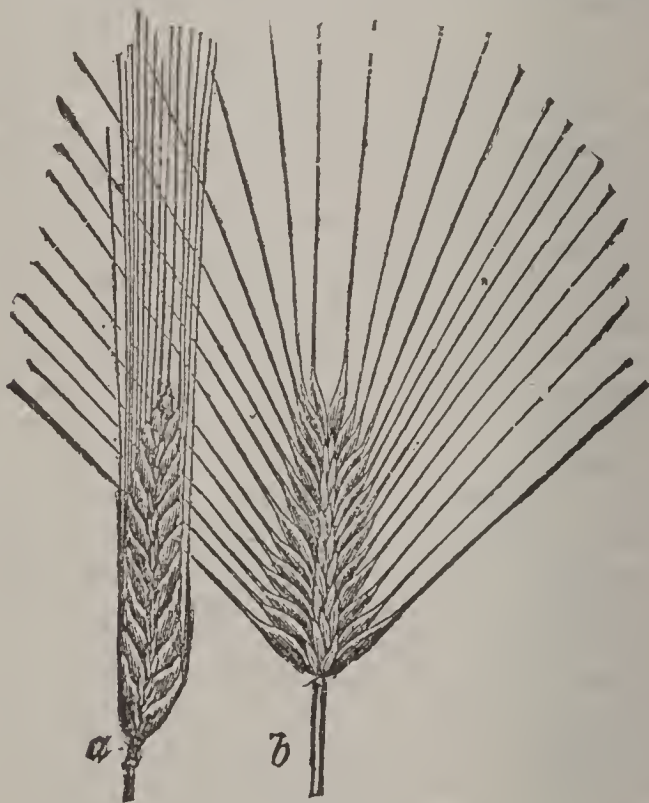
BARLETTA, *bár-lēt'tá*: a fortified seaport of Italy, province of Bari, on the Adriatic. It has large shipping-trade with Greece, the Ionian Islands, and other ports of the Adriatic. The town is well built, handsome, and clean; has a fine cathedral, a colossal statue supposed to represent the Emperor Heraclius, a college, theatre, and castle, formerly one of the most impregnable fortresses in Italy. A feature of B. is the large and magnificent gateway which leads to its harbor. During the blockade of B. by the French, 1502-3, which ended in the defeat and death of their commander, the Duke of Nemours, the celebrated combat between eleven cavaliers of France, and as many of Spain, in which the Chevalier Bayard so distinguished himself, occurred, ending in a drawn battle. Pop. about 35,000.

BARLETTA, *bár-lēt'tá*, GABRIELLO: 15th c.: Italian monk, b. perhaps at Barletta, in the kingdom of Naples. He became celebrated at Naples on account of his sermons, in which he mixed sarcasm and the ludicrous with the sacred; quoting, now Virgil, now Moses; placing David at the side of Hercules; and commenced a sentence in Italian to continue it in Latin and end it in Greek. Sometimes he forgot himself so far as to make expressions of which he had not considered the signification, as when he asked by what signs the Samaritan knew Jesus was a Jew. Very serious authors, Niceron and others, have given the response of the preacher; but it is not produced here. There is under his name a collection of Latin sermons, which have gone through more than 20 editions. The first is of Brescia, 1498. Some authors claim that these sermons have been altered from time to time, and besprinkled *ad libitum* with frivolities and buffooneries.

BARLEY.

BARLEY, n. *bār'li* [AS. *bærlic*—from *bere*: W. *barllys*—from *bara*, bread; *lys*, a plant]: a well-known grain, much used for making malt; the *Hordeum vulgare*, ord. *Gramin'ææ*. **BARLEY-CORN**, n. a grain of barley; the third part of an inch in length—said to be the origin of our measure of length, three barley-corns placed end to end being one inch. **BARLEY-SUGAR**, a sweetmeat, formerly made with a decoction of barley. See **SUGAR**. **BARLEY-WATER**, an infusion of barley. **BARLEY-BRAKE** [perhaps for *parley-brake*]: a rural play. **PEARL-BARLEY**, barley dressed for domestic use. **BARLEY-BREE**, in *Scot.*, malt liquor.

BARLEY (*Hordeum*): genus of Grasses, to which belongs one of the most extensively cultivated kinds of grain. The genus is distinguished by spiked inflorescence, three



Barley.

a, two-rowed barley; *b*, sprat or battledore barley.

spikelets being always situated upon each tooth of the rachis, of which sometimes only the middle one is fertile, and sometimes all three, so that in the former case the fruit-bearing spike is two-rowed, and in the latter case, six-rowed; the glumes are two, containing a single floret; the paleæ two, the outer one awned; and the seed is surrounded by the paleæ.

It is believed by some that the numerous varieties cultivated in the United States and Great Britain all belong to a single species; but most botanists divide them into three: *H. distichon*, with the grains in 2 rows; *H. vulgare*, with 4 rows; and *H. hexastichon*, with 6 rows. There are also kinds with naked seeds, as the Siberian, and the Himalayan, specially adapted to cold regions, and the *Sprat*, or

Battledore, largely grown in Germany under the name *German Rice*. There are also various kinds of B. grasses of comparatively little value. New varieties of B. are sometimes obtained by crossing with rye or wheat. Some varieties are sown in the fall, but in the United States the spring sorts are more largely grown. Brewers prefer the 2-rowed sorts, but they yield less than the 6-rowed. Though B. will grow in very high latitudes, and often yields a good crop where the subsoil is continually frozen, it does not endure the winter as well as rye or wheat, and it suffers greatly from cold rains when the plants are small or when the grain is nearly ripe.

B. has been cultivated from a very early period, and has been more widely disseminated than any of the other cereals. It has been used largely as food for man, but is now used principally for the manufacture of beer and other malt liquors (see MALT); though in some localities the grain is used for feeding live-stock. As compared with wheat or rye, B. is somewhat deficient in protein, but in connection with other materials it is beneficial to horses, cattle, and swine. The straw contains a moderate quantity of nutritive matter, though not in an easily digestible form, especially if the grain is allowed to become dead ripe. B. is sometimes sown immediately after harvest for forage to be used in the fall, and in Cal. large quantities are grown for hay. *Pearl B.*, sold by druggists, is grain from which the husks have been removed and which has been smoothed and polished by passing through a mill made for this purpose. Drinks made from B. are mild and nourishing, and are often used in fevers.

B. can be grown on various kinds of soil, but a rich loam seems specially adapted to its production. In clay soils, also, which are underdrained and thoroughly worked, it makes good return. A finely-pulverized seed-bed should always be provided. B. grows very rapidly, and in the n. United States matures in about three months from the time the seed is sown. In very high latitudes, where the light is almost continuous, it ripens in 6 to 9 weeks. In hot climates two crops are often harvested in a year, the seed of the first being sown in autumn, and that of the last as soon as the first has been gathered. It is not wise to take two crops of B. in succession from the same field; nor should this grain follow a crop of wheat, rye, or oats. It often does well on an inverted sod, especially where clover has been grown; and on rich land which has been kept free from weeds it thrives after hoed crops. As the period of growth of the B. plant is short, it is important that a liberal quantity of food material be supplied, and that it be in a condition to be readily assimilated. And as for malting purposes it is important that the grain throughout a field should ripen at the same time, the fertilizer should be uniformly distributed. If this is neglected, there will be spots in which the growth is rank and the grain will ripen late. If yard manure is used, it should be thoroughly decomposed, but heavy manuring of the preceding crop is better than the direct

BARLEY.

application of yard manure when the B. is sown. Guano, or nitrate of soda and superphosphates, are excellent fertilizers to be applied when the land is being prepared to receive the seed. On some soils the application of salt at the time of sowing proves very beneficial. Sowing should be done rather early in the season. From 2 to 3 bushels of seed per acre is required if sown broadcast, and about one-third less if drilled. As drilling secures a more uniform depth of covering as well as a more even distribution of seed, it is the preferable method. A smaller quantity of seed is needed for early than for late sowing, and for poor soils than for those which are rich. The seed should be carefully selected, and a mixture of varieties should be avoided. It should have deeper covering than wheat requires.

If the grain is to be used for malt, the time of harvesting will be of great importance. If cut too early, the grain will shrivel; and if it stands too long, it will shell badly in the field, and will also lose its bright color, on which its value to quite an extent depends. The best time is thought to be when most of the ears point down. B. is sometimes bound in bundles, though many growers handle it as they do grass. It should be well cured before being stacked or put into the barn, and exposure to rain is to be avoided if possible. If grown for feeding, particularly if the straw is to be used for this purpose, the grain should not be so ripe as it should be for malting. Though B. is not as subject as wheat to attacks of diseases and enemies, it is sometimes injured by Smut (q.v.), and Rust (q.v.), and the Hessian Fly (q.v.). The yield of B. varies from less than 10 to more than 60 bushels per acre. The average yield for the United States during 7 years (1885-1891 inclusive) ranged from 19 to 25.8 bushels. On land in fair condition 30 bushels of grain weighing 48 lbs. per bushel (the legal weight in a majority of the states), and 2,000 lbs. of straw may be considered a good crop. The number of pounds of the principal elements which such a crop takes from the soil is about as follows: Nitrogen, 33.76; phosphoric acid, 15; potash, 32.13. The proportion of straw to grain is much larger with light than it is with heavy crops.

The annual B. crop of the world is estimated at 825,000,000 bushels—more than three-fourths being grown in Europe. Great Britain produces about 80,000,000 bushels and imports about 30,000,000 bushels per year. In 1902 the U. S. produced 134,954,023 bushels; on 4,661,063 acres; valued at \$61,898,634. Cal. and Minn. were the leading producing states, with crops of 29,751,124 and 25,956,245 bushels respectively.

BARLEY-BIRD—BARLEYCORN.

BARLEY-BIRD, n.: the wryneck—*Yunx Torquilla*. In e. counties of England, the nightingale.

BARLEY-BREAK, (or BRAKE): a popular amusement, very common in the reign of James I., and, with certain modifications, in name and practice still existing as a rural game in England and Scotland. Originally, it was played by six people, three of each sex, who were formed into couples. A piece of ground was then apportioned into three parts; and into the centre one, called *hell*, a couple was doomed by lot. The sport consisted in the two in the condemned part 'catching' one of the other couples while they were in the act of changing places, when the couple caught had to go into the centre. The capture was not easy, for by the rules the capturing couple were bound to keep united, while the others when hard pressed, might sever. When the whole had been caught, the game was ended, and the last couple taken was said to be in hell. Their punishment appears to have consisted in kissing each other. In Scotland, the game consisted in one person chasing the others round the stacks in a farmyard; and when one was caught, he or she had to assist in capturing the rest. The origin of the name is doubtful. Dr. Jamieson suggests that, in Scotland, the locality of the game may have given it its name—'barla-bracks, about the stacks.' The same authority also adds: 'Perhaps from *barley* and *break*, q., breaking of the *parley*, because after a certain time allowed for settling preliminaries, on a cry being given, it is the business of one to catch as many prisoners as he can.' This supposition is not improbable. In the modern games of 'Shepherds a-warning,' and 'Tig,' which appear to have been derived from B., 'a barley' means a *parley*.

BARLEYCORN, JOHN: a personification of the spirit of barley, or malt liquor, used jocularly, and also in humorous poetical effusions. There is a whimsical English tract of old date *The Arraigning and Indicting of Sir John Barleycorn, Knt.*, printed for Timothy Tossplot, in which Sir John is described as of 'noble blood, well beloved in England, a great support of the crown, and a maintainer of both rich and poor.' See Hone's *Every-day Book*, vol. i.

BARLOW.

BARLOW, ARTHUR: explorer: 1550-1620. Nothing is related of him until Sir Walter Raleigh placed him in command of an expedition for colonizing purposes in America. B. had two ships and sailed from England 1584, Apr. 27, exploring Pamlico Sound and Albemarle Sound. The chief interest attaching to this expedition is comprised in the fact that B.'s description of the beauty of the country, on his return led Queen Elizabeth, the Virgin Queen, to give it the name Virginia.

BARLOW, FRANCIS CHANNING: military officer: 1834, Oct. 19-1896, Jan. 11: b. Brooklyn, N. Y. He graduated at Harvard 1855, and studied in the law office of William Curtis Noyes, in New York. He was admitted to the bar and began practice, for a while also doing editorial work on the N. Y. *Tribune*. At the outbreak of the civil war he joined the 12th regt. national guards, S. N. Y., coming out of his 3 months' service as lieut. He again went to the front as lieut.col. 61st N. Y. vols.; was promoted col., and 1862, Sep. 19, brig.gen. for distinguished services at the battle of Fair Oaks. At Antietam B. was severely wounded and supposed to have been killed. He was again wounded at Gettysburg, but recovered and fought through the war. He was sec. of state of New York 1865-68, afterward U. S. marshal and atty.gen. 1872-3; then resumed practice of law in New York.

BARLOW, *bār'lo*, JOEL: 1755-1812, Oct.; b. Reading, Conn. He studied at Yale Univ., and intended to enter the profession of law, but served as a military chaplain during the War of Independence. In 1787 he published a poem called *The Vision of Columbus*, which in 1805 appeared anew in enlarged form as *The Columbiad*. It abounds in beautiful passages, but is overburdened with political and philosophical disquisitions, and disfigured by singularities of expression. B. accepted a commission in 1788 to prosecute the sale of lands for the Ohio Company in England and France, where he signalized himself by zealous republicanism; published in 1792 in London a poem entitled *The Conspiracy of Kings*, and endeavored also to work upon the public mind in England by political pamphlets. In Autumn 1792 he was deputed by the London reformers, with whom he was associated, to proceed to Paris, where he received much attention. Thenceforward France was his home, except for six years after 1805, when he established himself near Washington, on the banks of the Potomac, where he built a splendid mansion, known as 'Kalorama,' the result of his wealth acquired in commercial pursuits in Paris. In 1792-3, while at Chambery, in Switzerland, he wrote his famous poem, *Hasty Pudding*, in several cantos. This, and his version of the 37th Psalm in his edition of *Watts' Hymns*, have best preserved his literary memory. His political services were signal in contributing twice to preserve peace between his native country and France, 1800 and 1811; also in forming a treaty with Algiers that secured the liberation of more than one hundred American prisoners. In France, he received

the rights of French citizenship. He spent some years on the continent of Europe in political, literary, and mercantile pursuits, and was for a short time American consul at Algiers. He returned to America 1805, and was appointed ambassador to France 1811. He died at Zarnawicze, near Cracow, on his way to a conference with the Emperor Napoleon at Wilna.

BARM, n. *bárm* [AS. *bearm*; Ger. *berm*; Dan. *bærme*, the dregs of oil, wine, or beer]; the scum or slimy substance from beer, which consists of yeast; yeast; leaven for bread. BARMY, a. *bár'mǐ*, containing yeast (q.v.).

BARM, n. *bárm* [AS. *beram*, the bosom: Icel. *barmr*: Goth. *barms*]: in *OE.*, the bosom; the lap.

BARMECIDES, or BARMACIDES, *bár'me-sīdz*, or BAR'-MEKIDES: Persian family, distinguished among the most powerful in the province of Khorasan, the cradle of the greatness of the Abbaside caliphs, whose cause the *children of Barmek* espoused. KHALED-BEN-BARMEK, the first of these whose authentic history has reached us, was the prime-minister of Abul Abbas Al-Saffah, the first Abbaside caliph; and his influence enduring through the reigns of Al-Mansur and Mohdi, the latter entrusted him with the education of his son, the celebrated Harun Al-Raschid. YAHYA, the son of Khaled—according to eastern historians, equally conspicuous for virtue and talent—was made vizier by Harun upon his accession to the caliphate (A.D. 786), and both by his military skill and civil administration, contributed largely to the prosperity of the reign—the caliph himself bestowing on him the appellation of Father. Harun, however, afterwards becoming jealous of the growing power and popularity of two of Yahya's sons, Fadhl and Jarfar (the Giafar of the *Arabian Nights*), put them to death, and arrested all the B. throughout the kingdom and confiscated their goods. Harun even carried his enmity so far as to forbid the mention of their name on pain of death; but their virtues and their glory are celebrated by almost all Mohammedan poets and historians.

BAR'MECIDE'S FEAST: a phrase originating probably in the story of the barber's sixth brother, in the *Arabian Nights* (abridged in the *Guardian*, No. 162). The substance of the story is as follows: One Schacabac being in great want, and not having tasted food for two days, ventured to visit a rich Barmecide (see above) noted both for his hospitality and eccentric humor, in the hope of generous entertainment. The Barmecide, on learning his condition, invited him to dinner. Schacabac was presented with an empty plate, requested to 'make himself at home,' and by and by, asked 'how he liked his rice-soup.' It was apparently a cruel jest to play off on a starving man. Schacabac, nevertheless, feigned to enter into the humor of his host, and expressed his conviction that the rice-soup was delicious. The Barmecide continuing the imposition, next asked his victim if he ever saw whiter bread. Poor Schacabac, who saw neither bread nor meat, nor indeed anything eatable, made a prodigious effort to look happy;

BARMEN—BARNABAS.

he even went the length of gently remonstrating with his host for not supposing him completely satisfied. In this way a magnificent but fictitious dinner was disposed of. When wine, however, was produced, Schacabac pretended only to taste it on the ground that he was 'quarrelsome in his liquor,' and might do his host an injury. The Barmecide forced him, however, and at last Schacabac, in an excusable rage at being so elaborately tantalized, feigned to have forgotten himself, and gave the eccentric old gentleman 'a good box on the ear.' This put a stop to the joke. The Barmecide was pleased with the patient humor of his guest, and a visible dinner was immediately ordered.

BARMEN, *bâr'mèn*: a most charming valley, about two leagues in length, on the Wupper; about two leagues from Elberfeld, in the province of Rhenish Prussia. It is divided into Upper and Lower B., and contains five towns or villages, which united form the town of B., now continuous with Elberfeld. Nowhere in Germany is so much manufacturing industry accumulated in a single spot. B. is the principal seat of the ribbon-manufacture on the continent. Its fabrics go to all parts of the world. It produces linen, woolen, cotton, silk, and half-silk ribbons, cloth of various kinds, stay-laces, thread, etc. It has also considerable manufactures of soap, candles, metal-wares, buttons, machinery, and pianofortes. There are, besides, in the valley, numerous bleach-fields and Turkey-red dye-works. Lower B. has a mineral spring and a bathing establishment. Pop. of B. (1890) 116,144 chiefly Protestant.

BARN, *n. bârn* [AS. *berern*—from *bere*, barley; *ern*, a place: Dut. *berm*, a heap: Dan. *baarm*, a load]: a covered building for farm produce. BARN DOOR FOWL, a dung-hill cock or hen. BARN-OWL: see OWL.

BAR'NABAS, EPISTLE OF: a very ancient Christian writing, attributed to Barnabas, the fellow-laborer of the apostle Paul, but deemed by scholars generally to have been written by some Gentile Christian at Alexandria in the beginning of the 2d c. It is contained in the codex Sinaiticus; and Bryennios discovered, 1875, a complete Greek MS. of it in the Library of the Most Holy Sepulchre, at Constantinople. It contains twenty-one chapters. Its aim is obviously to strengthen the faith of believers in a purely spiritual Christianity. It begins by declaring that legal sacrifices are abolished, and then proceeds to show, though not in a very coherent or logical manner, how variously Christ was foretold in the Old Testament. In the tenth chapter, it spiritually allegorizes the commands of Moses concerning clean and unclean beasts; in the fifteenth, it explains the 'true meaning' of the Sabbath; and in the sixteenth, what the temple really prefigured. This concludes what may be termed the doctrinal portion of the epistle; the remainder, which is of a practical character, describes the two ways of life—the way of Light and the way of Darkness, and closes with an exhortation, that those who read it may so live that they may be blessed to all eternity. It is a simple, pious, and earnest work; but

BARNABAS—BARNACLE.

makes a far more judicious use of the New Testament than of the Old.

BARNABAS, SAINT: properly **JOSES:** mentioned in the Acts of the Apostles as a fellow-laborer of the apostle Paul, and even honored with the title of apostle. He is also supposed to have founded the first Christian community at Antioch. According to tradition he became the first Bp. of Milan; but he is differently reported to have died a natural death, and to have suffered martyrdom at the hands of the Cypriot Jews, 61. The Epistle ascribed to him is of very doubtful authenticity. See **BARNABAS, EPISTLE OF.**

BARNABITES, *bâr'na-bīts*: an order of monks which sprang up at Milan, 1530; so called because the church of St Barnabas in that city was granted them to preach in. They were approved by Pope Clement VII. and Pope Paul III. Their special duties were, to attend the sick, to preach, to instruct the young, and to take the charge of souls. They soon established themselves in Italy, France, Austria, and Spain, and enjoyed the privilege of teaching theology in the schools of Milan and Pavia. Many eminent men have been sent forth by them. Besides the three usual monastic vows, they took a fourth, viz., not to sue for church preferments. In France and Austria, they were employed in the conversion of Protestants; but they have now, as a body, almost fallen into oblivion. Only a few monasteries remain here and there in Italy and Austria.

BARNACLE, n. *bâr'nă kl*, or **BER'NICLE** [F. *barnache*; Gael. *bairneach*; Manx. *barnagh*, a limpet, conical-shaped: Sp. *bernicla*, a bird like a goose: properly AS. *bearn*, a



Group of Barnacles.

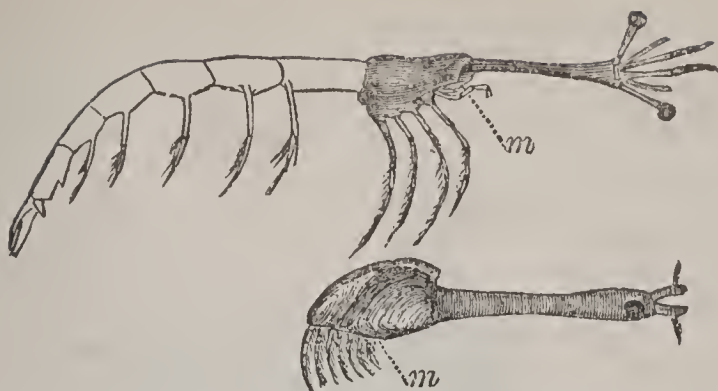
child; *aac*, oak—expressive of the old belief that the barnacle, externally resembling an acorn, grew on oak trees], (*Lepas*, also called *Anatifa* and *Pentalasmis*): a conical shell-fish, or rather crustacean, a genus of *Cirripedia* (q.v.); type of a family of articulate animals distinguished by a long flexible stalk or peduncle, which is provided with muscles, upon the summit of which, in the true B., are shelly valves, five in number, enclosing the principal

BARNACLE GOOSE.

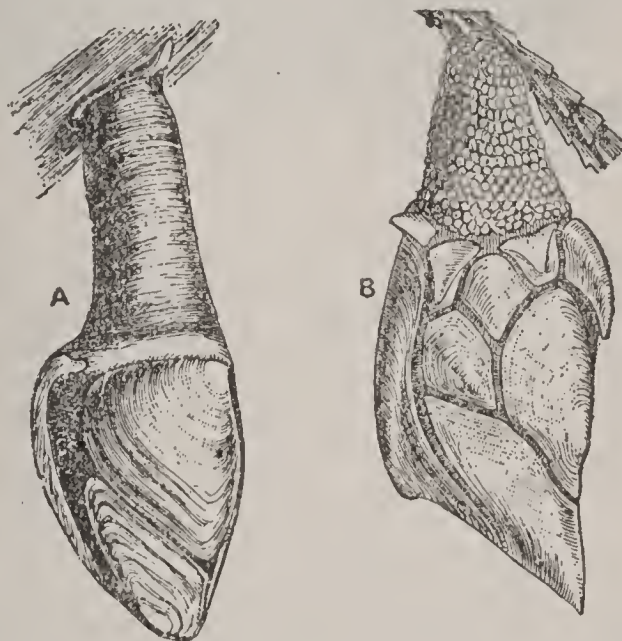
organs of the animal, and opening and closing on one side like the opercular valves of *Balanus* (q.v.), to admit of its spreading out and retracting its net—an apparatus similar to that by which the animals of that genus obtain their food. Barnacles abound in almost all seas, attaching themselves in great numbers to logs of wood, ships' bottoms, etc. They grow very rapidly. Some of the species are eaten in some parts of the world, and perhaps they were among the *bulani* which the ancient Romans esteemed a delicacy.—In some *cirrhophods*, very nearly allied to the true barnacles, and resembling them in general form, the shelly valves almost entirely disappear.

In former times, the B. was supposed to be the embryo of a goose or bird of some kind; a notion which doubtless arose from a fancied resemblance between the convolutions of the fish in its shell and the embryo of a bird in the egg. It was, therefore, believed that the barnacle goose, described in next article, sprang from these marine shells. Hollinshed gravely affirms that such was the case; and the most learned men of their time were weak enough to give credence to the absurdity. Gerard, in his *Herbal* (1597), declares, that after 'a thing in form like a lace of silke finely woven, as it were, together'—which, he correctly enough states to be 'the first thing that appeareth' when 'the shell gapeth open'—there next follow 'the legs of the bird hanging out;' and at last the bird, increasing in size, 'hangeth only by the bill,' and 'in short space after it cometh to full maturity, and falleth into the sea, where it gathereth feathers, and groweth to a fowl bigger than a mallard, and lesser than a goose,' etc. All this was represented as constantly taking place on the coast of Lancashire and the Hebrides, and continental writers of greater name reported in like manner the same fable, against which Ray and other early naturalists were obliged seriously to argue. The B., however, really undergoes transformations not less wonderful than the fabled ones, which have rendered it an object of so much interest. See CIRRHOPODA.

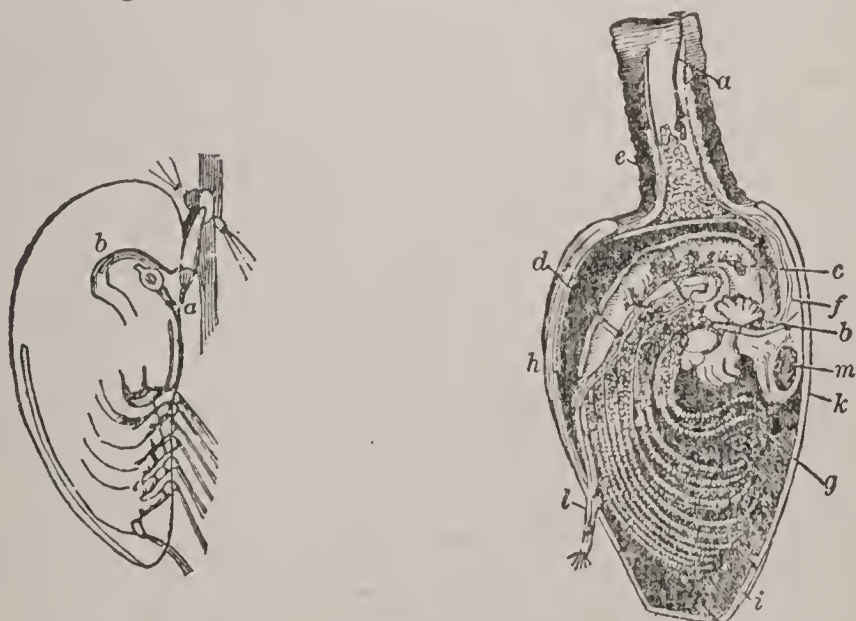
BAR'NACLE GOOSE, or BER'NICLE GOOSE: often also called BARNACLE, or BERNICLE (*Anser Bernicla* or *leucopsis*): the bird which the fables of former days represented as deriving its origin from the cirrhopod of which it bears the name. See BARNACLE. It is smaller than the common wild goose, being only a little more than 2 ft. long, and about 5 lbs. in weight. It is very prettily marked, having the forehead, cheeks, and throat white, the bill black, and a black stripe extending from it to the eye; the crown of the head, neck, and upper part of the breast black; the rest of the plumage on the upper parts of the body chiefly ash-gray and black, in undulating bars—on the lower parts, white. It is a common winter visitant of the w. coasts of Britain and of Ireland, but in the e. parts of Britain it is rare. It retires in spring to more northern regions, where it breeds, vast numbers passing n. along the coast of Norway to the Arctic Ocean. It is highly esteemed for the table.



Barnacle.—Fig. 1. Comparison of normal Crustacean type with the degenerate condition of Cirripedes (after Darwin): the shaded portions correspond. Note the arrested development of the abdomen, and the marked degeneration, though not decrease, of the anterior head region, which forms the barnacle stalk; *m*, mouth.



Barnacle.—Fig. 2. A, *Lepas hili*; B, *Scalpellum rostratum* (after Darwin)



Barnacle.—Fig. 3. Attached Pupa of *Lepas australis*: the Cement-duct, *b*, is seen running to Antennæ, *a*. Fig. 4. Structure of *Lepas*, after removing right shell and integument: *a*, Cement-gland and duct; *b*, Liver; *c*, Testes; *d*, Vas deferens; *e*, Ovary; *f*, Oviduct; *g*, Thoracic legs; *h*, 'Carina;,' *i*, Tergum; *k*, 'Scutum;,' *l*, Cirrus or penis; *m*, Muscle.

BARNACLE GOOSE.

Formerly, but not now, the Barnacle Goose and the Brant were regarded as two species—the former named *B. leucopsis*, referring to much white on the head, and the latter *B. bernicla*. But the color varies much. The 'Brant Goose' was supposed to be smaller



Barnacle Goose.

than the B. G., being only about 21 inches in length. It is also of much darker plumage, the whole head, throat, and neck being black, except a small patch on each side of the neck, which is white, mixed with a few regularly placed black feathers; the upper parts of the body generally almost black, and the lower parts slate gray, except the vent and under tail-coverts, which are white. It is remarkable for length of wing and powerful flight, and for its distant migrations. It is very common in winter on the British shores, but breeds in high n. latitudes. It is a winter-bird of passage in the United States and Canada, as in Britain and on the continent of Europe. The Common Wild Goose of N. Amer. is *Branta Canadensis*.

Very nearly allied to these species is the Red-breasted Goose, or Red-breasted Barnacle (*Anser ruficollis*), a beautiful bird, of which the neck and upper part of the breast are of a rich chestnut red. In size, it resembles the Brent Goose; it is a very rare visitant of Britain and of the continent of Europe, and is abundant only in extreme n. Asia. —Another species, called Hutchins' Goose, or Barnacle (*A. Hutchinsii*), of dark plumage, and with a triangular patch of white on each side of the head and neck, is abundant in Hudson's Bay, and extreme N. America.

These species are regarded by some naturalists as constituting a genus *Bernicla*, distinguished chiefly by a shorter and more slender bill from the ordinary or true geese.

The Egyptian Goose or Bargander (*Anser Egyptiacus*) is sometimes ranked with these, sometimes made the type of a distinct genus, *Chenalopex*, upon account of the longer bill, a short spur with which the bend of the wing is armed, and the anatomical peculiarity of a hollow bony enlargement at the bottom of the trachea of the male. It has long

BARNACLES.

been kept in parks and pleasure grounds in Britain, chiefly on account of the beauty of its plumage, and has become partially naturalized. It is a little smaller than a common goose; its voice more resembles that of a wild-duck. The prevailing color of the plumage is light chestnut brown, minutely rayed with darker lines; the neck and part of the wings are white. Large chestnut patches surround the eyes. It is very abundant on the Nile, and is frequently figured in Egyptian sculptures. It is much esteemed for the table, and was kept and fattened for it by the ancient Egyptians. It is the *Chenalopex* of Herodotus.

BARNACLES, n. plu. *bār'nă-klz* [prov. F. *berniques*; OF. *bericles*, spectacles—from L. *beryllus*, crystal: perhaps only a corruption of *binocles*, double eyes]: spectacles; irons put on the noses of horses to make them stand quiet; B. in *heraldry*, similar to what are now called twitchers (resembling the original spectacles that clasped the nose), were instruments used by farriers to curb and control unruly horses; they are frequently introduced into coats of arms as a charge.

BARNADESIA, n. *bâr-na-dē'zī-a* [after *Michael Barnades*, a Sp. botanist]: genus of composite plants, the typical one of the family *Barnadesiæ*. The species are spiny bushes with entire leaves and pink florets.

BARNARD, *bâr'nêrd*, CHARLES: author: b. Boston, 1838, Feb. 13. He received a common-school education, began studying for the ministry, abandoned it for journalism, and became asst. editor of the *Boston Journal of Commerce*, musical editor of the *Boston Post*, and head of the *World's Work Department* in the *Century Magazine*. He has composed a number of amateur operas and dramas, including: *The Triple Wedding*; *Too Soon*; *Eugene*; *The Dreamland Tree*; and *Katy Neal*; taken part in the authorship of the play *We, Us, and Co.*; and contributed more than 150 short stories and sketches to the periodicals. His principal books are: *My Ten-Rod Farm*; *Farming by Inches*; *The Strawberry Garden*; *A Simple Flower Garden*; *The Tone Masters* (3 vols. 1871); *The Soprano* (1872); *Legilda Romanief* (1880); *Knights of To-day* (1881); *Co-operation as a Business* (1881); *A Dead Town* (1884); *Talks about the Weather* (1885); *Talks about the Soil* (1886); *Talks about Our Useful Plants* (1886); and *Graphic Methods in Teaching* (1889).

BARNARD, DANIEL DEWEY, LL.D.: lawyer and politician: 1797, July 16—1861, Apr. 24; b. Sheffield, Mass. He graduated at Williams Coll. 1818; practiced law at Rochester, N. Y., from 1821, was a member of congress 1828-30, 1839-45, and U. S. minister to Prussia 1849-53.

BARNARD, EDWARD EMERSON, SC.D.: astronomer: 1857, Dec. 16—: b. Nashville, Tenn. While he was a photographer's assistant in Nashville, he was interested in astronomy; succeeded in purchasing a 5-inch telescope, and discovered two new comets (1881-2). In 1883 he was called to Vanderbilt Univ. as an assistant, with care of the astronomical observatory, at the same time pursuing college studies, and graduating 1887. While there he discovered more comets, and won five of the \$200 Warner prizes for these successes. On the completion of the Lick Observatory, he was called thither. He is the first observer of 16 comets, and of numerous nebulae. In 1892 he discovered the fifth satellite of Jupiter, and in the same year received the Leland gold medal from the French Academy of Sciences. He became Prof. of Astronomy at Chicago University and Director of the Yerkes Observatory 1895.

BARNARD, FREDERICK AUGUSTUS PORTER, S.T.D., LL.D., L.H.D., D.C.L., PH.D.: 1809, May 5—1889, Apr. 27; b. Sheffield, Mass.: educator. He graduated at Yale 1828; was tutor there 1829; taught in the American Asylum for the Deaf and Dumb at Hartford 1831, and in the New York Deaf and Dumb Institution 1832; was prof. of mathematics, natural philosophy, and chemistry in the Univ. of Ala. 1837-54; took orders in the Prot. Episc. Church 1856; was prof. of mathematics and astronomy, pres., and chancellor of the Univ. of Miss. 1856-61; was in charge of the printing and lithograph-

ing dept. of the U. S. Coast Survey 1861-64; and was pres. of Columbia College from 1864 till his resignation on account of ill health 1888, May 7. In 1860 he was pres. of the American Assoc. for the Advancement of Science, and a member of the expedition to observe the sun's eclipse in Labrador; 1862 he continued the reduction of the observations of the stars in the s. hemisphere begun by Gilliss; 1865 he was pres. of the board of experts of the American Bureau of Mines; 1867 was a U. S. commissioner to the Paris Exposition, and reported on *Machinery and Industrial Arts* (1869); 1872 pres. of the American Institute; 1873 till his death pres. of the American Metrological Soc.; 1874-80 foreign sec. of the National Acad. of Sciences, of which he was an original incorporator; and 1878 U. S. asst. commissioner-gen. to the Paris Exposition. He was editor-in-chief of *Johnson's Cyclopædia*, and a constant contributor to the *American Journal of Education* and the *American Journal of Science*; and, besides numerous papers in scientific literature, published: *Treatise on Arithmetic* (1830); *Analytic Grammar, with Symbolic Illustrations* (1836); *Art Culture* (1854); *Letters on Collegiate Government* (1855); *History of the U. S. Coast Survey* (1857); *University Education* (1858); *Undulatory Theory of Light* (1862); *Recent Progress in Science* (1869); *The Metric System* (1871, 3d ed. 1879); *Imaginary Metrological System of the Great Pyramid of Gizeh* (1884). His entire estate was bequeathed to Columbia College.

BAR'NARD, HENRY, LL.D.: educator: b. Hartford, 1811, Jan. 24. He graduated at Yale College 1830, was admitted to the bar 1835, and began his educational work while a member of the Conn. legislature 1837-40. He was sec. of the board of school commissioners of Conn. 1838-42; school commissioner of R. I. 1843-49; supt. of the Conn. state schools 1850-54; pres. of the State Univ. of Wis. 1857-59; pres. of St. John's College, Annapolis, Md., 1865-6; and U. S. commissioner of education 1867-70. While sec. of the Conn. board, he published the *Connecticut Common School Journal*, and, while R. I. commissioner, the *Rhode Island School Journal*. In 1855 he began publishing the *American Journal of Education*, and still (1890) publishes it. Since 1873 he has been engaged in preparing a collected edition of his works in 52 vols., to be entitled *The American Library of Schools and Education*. His published works include: *School Architecture* (1839); *National Education* (1840); *Practical Illustrations of School Architecture*; *Report on Public Schools in Rhode Island* (1845, 48); *Documentary History of Public Schools in Providence*; *Education and Employment of Children in Factories*; *Normal Schools and Teachers' Institutes* (1850); *National Education in Europe* (1854); *Normal Schools in the United States and Europe*; *History of Education in Connecticut from 1638 to 1854*; *Educational Biography* (1857); *Elementary and Secondary Instruction in Switzerland, France, Belgium, etc.*; *English Pedagogy*; *French Teachers, Schools,*

and Pedagogy; German Teachers and Educational Reformers; Object-Teaching and Oral Lessons on Social Science and Common Things (1861); *Pestalozzi and Pestalozzianism* (1861); *Primary Schools and Elementary Instruction; School Codes; Science and Art; and Superior Instruction in Different Countries.* D. 1900, July 5.

BAR'NARD, JOHN: clergyman: 1681, Nov. 6—1770, Jan. 24; b. Boston. He graduated from Harvard College 1704, studied theology, was chaplain to the Port Royal expedition, was offered a chaplaincy in England, but declined to subscribe to the 39 articles, and from 1716 till his death was settled at Marblehead, Mass. He published sermons, and *A Version of the Psalms*.

BAR'NARD, JOHN GROSS, LL.D.: 1815, May 19—1882, May 14; b. Sheffield, Mass. He graduated from West Point 1833, for many years was an engineer in the Gulf states, and was brevetted major for meretorious services in the war with Mexico. In 1850 he was chief of the force which made the first thorough survey of the isthmus of Tehuantepec, and two years later made surveys for improvement of the mouths of the Mississippi river. He managed the building of fortifications at San Francisco 1854, and was supt. of West Point Acad. 1855-6. At the opening of the civil war he was made chief engineer at Washington, held the same position in various campaigns in Va., directed the engineering operations of the siege of Yorktown, was a member of Gen. Grant's staff, and was brevetted maj.gen. vols. and maj.gen. U. S. army for distinguished services. He was afterward a member of the govt. light-house board, and retired 1881. He was a member of scientific societies, published numerous scientific papers, and several books.

BARNARD COLLEGE: a part of Columbia University, New York; organized 1889 and named in honor of Frederick A. P. Barnard, through whose efforts its establishment was largely due. It was designed for the education of young women by instructors from Columbia Univ. At the end of 1902 it reported 56 instructors and 400 students. In 1900, Jan., the college was formally incorporated into the general system of Columbia Univ. The trustees of the latter authorized Seth Low, president of the university, to assume charge of the welfare of Barnard on precisely the same terms as he had charge of the university. It is located on Morningside Heights, between Broadway and Claremont Ave., and 119th and 120th Sts.

BARNATO, *bâr-nâ'to*, BARNEY (properly BARNETT ISAACS): English speculator in S. Africa: b. London, of Jewish parents. At the age of 20 he went to S. Africa as showman; became a diamond broker, then owner of diamond mines; early invested in Transvaal gold fields, and acquired a fortune estimated at \$100,000,000. Crazed by heavy losses he committed suicide by leaping from a steamer near the Azores, 1897, June 14.

BARNAVE, *bâr-nâv'*, ANTOINE-PIERRE-JOSEPH-MARIE: 1761-93, Nov. 29; b. Grenoble, France; son of an advocate.

He adopted his father's profession, and early gained repute for ability in the parliament of Grenoble. He was chosen deputy from his province to the states-general 1789. He zealously advocated the proclamation of the Rights of Man, was vehement in opposition to the Absolute Veto, carried through the confiscation of church property to the use of the nation, the emancipation of the Jews, and the abolition of the religious orders, and was mainly instrumental in the liberation of the slaves and reorganization of the colonies. As a leader of the extreme party in the earlier stages of the revolution, he became the idol of the people, particularly after his victory over Mirabeau, in the question of the power of peace and war, which Mirabeau wished to remain with the king, and B. successfully claimed for the national assembly. His change to a more moderate course, defending the inviolability of the king's person, and resisting the assertion by the assembly of power to remove ministers, led to his being regarded as a renegade from the national party, and to his being fiercely assailed by the daily press. He retired to his native place on the dissolution of the national assembly; but was impeached, with Lameth and Duport-Dutertre, on account of correspondence with the court; was brought to Paris, tried before the Revolutionary Tribunal, condemned, and guillotined.

BARN'BURNERS: derisive name applied to a section of the democrats of N. Y. who opposed the annexation of Texas, the extension of slavery, the increasing of the state debt for building canals, and the granting of special privileges to corporations. With the free-soil party, the B. voted for Martin Van Buren for pres. 1848. The name came from a story of a farmer who burned his barn to drive out the rats that were eating his grain.

BARNEGAT, *bâr-nē-găt'*, **BAY**: bay in Ocean co., N. J.; about 23 m. long; connected with the Atlantic Ocean by B. inlet, which is a mile wide. On the s. side of this inlet is a light-house 150 ft. high, with a white flash-light. Island Beach and Squan Beach lie between the bay and the ocean.—The village of **BARNEGAT** is in Union tp., Ocean co., N. J.; on the Tuckerton railroad, one m. from B. Bay. Pop. about 1,000.

BARNES, *bárnz*, **ALBERT**: 1798-1870, b. Rome, N. Y.: minister of First Presb. Church, Philadelphia, 1830-67. He was one of the leaders in what was known as the New School in the Presb. Church; and was distinguished for his careful thought, his spiritual earnestness, and his meekness under sharp accusation of heresy. His *Notes* on various parts of the Old and New Testaments, specially adapted for the use of Sunday-schools and Bible classes, had an immense circulation. Two editions of 18 vols, were published in England, 1860-62.

BARNES, **ALFRED SMITH**: 1817, Jan. 28—1888, Feb. 17; b. New Haven: publisher. He removed to Hartford 1827, learned the book-selling business there, and when 21 years old formed a partnership with Prof. Charles Davies, for the publication of the latter's mathematical text-books and of Mrs. Emma Willard's histories, under

BARNES.

the firm-name of A. S. Barnes & Co. He personally canvassed a large tract of country for the sale of these books, and his intercourse with teachers induced him to make a specialty of publishing educational text-books. In 1840 the firm removed to Philadelphia, and 1845 to New York, where it has since kept its publishing dept., with a large manufactory in Brooklyn. B. retired from active management 1880, leaving five sons and a nephew in charge. He was pres. of the Brooklyn City Mission Soc., one of the managers of the Amer. Home Missionary Soc. (Congl.), and a director in numerous financial institutions; gave the Brooklyn Faith Home \$25,000, and the Y. M. C. A. of Cornell Univ. \$40,000 for their building; and bequeathed \$50,000 to various objects.

BARNES, GEORGE O.: religious revivalist: 1827, Apr. 22—: b. Garrard co., Ky. After graduating at Centre College, Danville, he studied theology at Princeton Seminary, and was ordained to the Presb. ministry 1854. He was a missionary in India 7 years, and returned home an invalid 1861; was pastor of a Presb. ch. at Stanford, Ky., 1863-71; then for some time worked as an independent evangelist in Chicago; 1876 he began to evangelize the people of the mountain region of s.e. Ky., hence his designation 'the mountain evangelist.' B. preached and sung hymns, his daughter accompanying with voice and the music of a reed-organ. He visited several cities on evangelizing tours.

BARNES, JAMES: 1806-1869, Feb. 12; b. Boston. He graduated from West Point 1829, held various army positions, resigned 1836, and was civil engineer of important railroads. He re-entered the army 1861, served with great credit through the war, was wounded at Gettysburg, where he commanded a division; and was brevetted maj. gen. vols. 1865.

BARNES, JOSEPH K., M.D.: surgeon-gen. U. S. A.: 1817, July 21-1883, Apr. 5; b. Philadelphia. He graduated in medicine at the Univ. of Penn. 1838, and after 2 years of private practice was commissioned assist. surgeon in the army, with assignment to duty at the U. S. Milit. Acad. After a few months he was detailed for service in Gen. Harney's expedition against the Seminoles in Fla., 1840-42; then served at Ft. Jessup, La., 1842-46. He was chief med. officer of a cavalry brigade throughout the Mexican war. He was in Oregon at the opening of the civil war, and in the spring of 1861 was assigned to duty in the office of the surgeon-gen. of the army at Washington; was appointed med. inspector with rank of col. 1863, and became surgeon-gen. with rank of brig. gen. the same year; he received the brevet rank of maj. gen. 1865. B. originated the valuable army med. museum and library.

BARNES, MARY (SHELDON): educator: 1850, Sep. 15—: b. New York. Having graduated at the N. Y. state normal school at Oswego, and at the Univ. of Mich., she gave three years to study in Europe, passing

one year at Zurich, and one at Cambridge, Eng., under the preceptorship of Prof. John R. Sceley, prof. of mod. hist. in Cambridge Univ.; after her return she was for 3 years prof. of hist. in Wellesley College. She was appointed, 1892, assist. prof. of mod. hist. in the Leland Stanford, Jr., Univ., Palo Alto, Cal., where her husband, Earl Barnes, holds the chair of education: her special depts. of instruction in the univ. are the hist. of the 19th c., and that of Cal. and the states and territories of the west that were originally Spanish. She has published *Sheldon's Studies in General History* (2 vols.), and *Sheldon-Barnes's Studies in American History* (2 vols.).

BARNET, *bâr'nět*, CHIP'PING: a town in the s. of Hertfordshire, on a hill-top, 11 m. n.n.w. of London; formerly a place of importance on the great northern coach-road. Large cattle-fairs are held here. Here, 1471, was fought the famous battle of B., between the Yorkists and Lancastrians, in which the latter, after a desperate struggle, were routed, and their leader, Warwick, 'the king-maker,' killed, by which event Edward IV. was firmly established on the throne. A commemorative obelisk is now erected near the spot. Pop. (1881) 4,095; (1891) 5,410.

BARNÉVELDT, *bâr'nêh-vêlt*, JAN VAN OLDEN, Grand Pensionary of Holland: 1547-1619, May 13. He early showed great ardor in the cause of the independence of his country. As advocate-general of the province of Holland, he proved equally his insight into affairs and his address in diplomacy. Penetrating the secret designs of Prince Maurice (q.v.) of Orange, he became the head of the republican party, which aimed at subordinating the stadtholder to the legislature. It was he also who opposed the warlike tendencies of Maurice, concluded (1609) a truce with Spain, and prevented the states-general from taking part in the revolt of the Bohemians. His influence excited the House of Nassau to still greater jealousy, which in the religious controversies between the Remonstrants (see **ARMINIUS**) and Gomarists swelled into the bitterest hostility. With the view of obviating a civil war, B. proposed an ecclesiastical assembly, which resulted in agreeing to a general toleration on the disputed points. The states at first concurred in this wise measure; but the intrigues of the Orange party brought about a change of views, by representing the Remonstrants as secret friends of Spain. B., who sympathized with the more tolerant principles of that party, was attacked in scurrilous publications, and was insulted even in the meeting of the states by the mob, with whom Maurice was an idol. The strife between the Remonstrants and Gomarists threatened to end in civil war. B. was illegally arrested, 1618, Aug. 29, with Grotius and Hoogerbeets, and thrown into prison. In Nov. following, Maurice procured the summoning of the Synod of Dort (q.v.), which condemned the Remonstrants with the utmost rigor and injustice. In 1619, March, while the Synod was still sitting, B. was brought to trial before a special commission of 24 judges, who condemned as a traitor the innocent man to whom his country owed its political existence. It was

BARNEY—BARNSTABLE.

in vain that his friends and relations raised their voice; equally vain was the interference of the Dowager Princess of Orange and of the French ambassador; Maurice was not to be moved; and the venerable man of 71 years of age mounted the scaffold and laid down his head with the same firmness that he had shown through all his life. His sons, Willem and René, were at the same time dismissed from office. Four years after their father's death they took part in a conspiracy against the life of the prince, which was discovered. Willem escaped to Antwerp, but René was seized and beheaded.—See Motley's *Life of B.* (2 vols. London 1874).

BARNEY, *bâr'nĩ*, JOSHUA: naval officer: 1759, July 6—1818, Dec. 1; b. Baltimore. He went to sea as a boy, and was forced into the service of the king of Spain. In 1775 he was appointed master's mate of the U. S. sloop *Hornet*, was promoted lieut. 1776, and attached to the sloop *Sachem*, and afterward to the *Andrea Doria*, and was taken prisoner while in charge of a prize, but exchanged 8 months later. While in command of the *Saratoga*, he was captured and carried to Plymouth, England, but escaped 1782. He was now given the command of the *Hyder Ally*, and captured the British ship *General Monk*, which was renamed the *General Washington*, and placed under B.'s command. Accompanying Monroe to Paris 1794, he entered the French naval service, was commissioned capt., and put in command of a squadron. He resigned, and came home 1800. During the war of 1812, he served with distinction, particularly at the battle of Bladensburg, where he was wounded and taken prisoner, but soon exchanged. In 1817 he was appointed naval officer at Baltimore. He died at Pittsburgh, Pennsylvania.

BARNHARDTITE, n. *bárn-hard'it* [after *Barnhardt's Iand*, in N. C., where it is found]: a mineral, classified by Dana under his Pyrite group. Composition: Sulphur, 30·5; copper, 48·2; iron, 21·3; hardness, 3·5; sp. gr. 4·321. Lustre, metallic; color, bronze yellow.

BARNSLEY, *bárnz'lē*: town in the West Riding of Yorkshire, 39 m. s.w. of York; on a hill. It has coal and iron mines, linen manufactures, bleaching and dye works, manufactures of iron and steel, wire-works and glass-works. Besides ample railway communication, it has two canals. B. has many educational and benevolent institutions, and a public park of 20 acres. Chief buildings are the county court and bank. Pop. (1871) 23,021; (1881) 29,789; (1891) 35,437.

BARNSTABLE, *bárn'stā-bl*: cap. of the co. of B., Mass.; 65 m. s.e. of Boston. The inhabitants are engaged chiefly in whale and cod fisheries, and in the coast trade. B. has a fine courthouse, several churches, a high school, and other schools, 2 weekly papers, and a custom-house. The southern portion of the town is largely frequented as a summer resort. Pop. (1880) 4,250; (1890) 4,023; (1900) 4,364.

BARNSTAPLE—BARNUM.

BARNSTAPLE, *bárn'sta-pl*: town in n.w. Devonshire, on the right bank of the Taw, 3 m. from its mouth, 34 n.w. of Exeter. The Taw is here crossed by an ancient bridge of 16 arches, which has been widened by iron-work on each side. In consequence of the river and harbor having become filled up with sand, much of the trade of B. has been transferred to Bideford. Its manufactures are pottery and lace. It sends two members to parliament. B. has existed since the reign of Athelstan, who built a castle here. The poet Gay was born near the town, and educated at its grammar-school. Pop. (1881) 12,283; (1891) 13,058.

BARNUM, *bár'nũm*, HENRY A.: soldier: 1833, Sep. 24—1892, Jan. 29; b. Jamesville, N. Y. After studying at Syracuse, N. Y., he was a tutor in the Syracuse Institute 1856; studied law and was admitted to practice. In 1861 he was elected capt. 12th regt., N. Y. S. vols., served through the war, was wounded and left for dead on the field at Malvern Hill—a body supposed to be his being afterward found, and buried with funeral oration. But he was a captive in Libby prison. He was with Sherman in the march to the sea, commanding a brigade. He was several times wounded, was repeatedly promoted for gallantry, and was brevetted maj gen. 1865, Mar. 13. After the war he was inspector of prisons, deputy tax commissioner, and harbor master of New York, and, 1885, a member of the state legislature.

BARNUM, PHINEAS TAYLOR: showman: 1810, July 5—1891, Apr. 7; b. Bethel, Conn. He was son of a country storekeeper, who died poor, and the boy earned his living in various lines of business, and in different towns, until 1828, when he settled in Bethel, opened a store, and married. He was unsuccessful, and established a weekly newspaper with no better fortune; and he removed to New York 1834, and entered the show business with one attraction, Joyce Heth, a colored woman, announced as the nurse of George Washington, and 161 years old. The exhibition was very successful; and after Joyce Heth died, a year later, B. purchased Scudder's American Museum, changed its name to 'Barnum's,' and soon began to accumulate money. He engaged the dwarf, Charles S. Stratton ('Gen. Tom Thumb') 1842, and exhibited him successfully in the United States and Europe. In 1849 he made a contract with Jenny Lind for a concert tour of 100 nights in America at \$1,000 a night. He gave only 95 concerts, but made an enormous profit from this speculation and from many others, and retired temporarily, 1855, to live in his oriental villa, 'Iranistan,' in Bridgeport, Conn.; and expended large sums in improving and beautifying that town. Having endorsed notes to the amount of about \$1,000,000 for a manufacturing company which failed, he was financially ruined; and went to England with Tom Thumb 1856 to retrieve his fortunes. Soon he was again successfully conducting his museum in New York; but it was burned 1865, July 13, as was another which he opened afterward. In 1871 he organized his great travelling circus and menagerie, with which he was remarkably successful. B.—who as showman was first despised, then ridiculed, then tolerated, and lastly for many years abundantly welcomed—grew into high popular esteem for his numerous charities and public spirit; and was several times elected to the Conn. legislature, besides being mayor of Bridgeport. He was an earnest advocate of temperance, frequently lecturing on that subject. He wrote his *Autobiography* (Hartford 1869); also *Humbugs of the World* (New York 1865); and a story, *Lion Jack* (1876).

BARNUM, WILLIAM H.: manufacturer and politician: 1818, Sep. 17—1889, Apr. 30; b. Boston Corners, N. Y., near the Conn. boundary. He received his education in the public schools, and when only 18 years of age entered into business and manufactured car-wheels. He afterward engaged in the iron manufacture at Lime Rock, Conn., and accumulated a large fortune. In 1852 he was elected to the Conn. legislature; was a member of congress 1866-76; and 1876 was elected to the U. S. senate for an unexpired term. He was chairman of the national democratic committee 1880 and 84.

BARNWELL—BAROCHE.

BARNWELL, *bárn'wél*. **JOHN**: soldier: abt. 1671–1724; b. Ireland. He emigrated to Beaufort, S. C., where he founded one of the best known southern families. He was distinguished by prowess in the conflicts of the early colonists with the Tuscaroras, a tribe of Indians who held 15 towns on the Tar and Neuse rivers in N. C., whence they made frequent attacks on the coast settlements. B. defeated them 1712, killing or capturing as many as 1,000, and driving them out of that country, for which feat he received the sobriquet 'Tuscarora John.'

BARNWELL, **ROBERT**: soldier: 1762–1814; b. Beaufort, S. C.; grandson of John B. He volunteered to serve in the revolutionary war when only 16 years of age; and fought at Port Royal, where he was wounded, captured, and confined in a prison ship. He formed a bold plan with the other prisoners, and was successful in overpowering his jailers, seized the ship, and escaped. B. was a member of the state legislature, and was in congress 1791–2.

BAROACH, *bá-rôch'*, **BROACH**, or **BHARUCH**: large town of British India, province of Bombay; on the n. bank of the Nerbudda, here a river two m. wide even at ebb-tide, but shallow, and the navigable channel winding and difficult even at high water. B. is a very ancient town, supposed to be the *Barygaza* of Arrian. It is in a most fertile district, and was formerly very flourishing, with a large population; but in consequence of political troubles it fell into decay. It has of late begun to recover prosperity, and its commerce is increasing. B. belonged to the Mussulman kingdom of Guzerat, on the overthrow of which by the Emperor Akbar, it was assigned to a petty nawab; and falling under the dominion of the Peishwa, was taken by the British 1772, ceded to Scindiah, 1783, in acknowledgment of the kind treatment of some British prisoners; and again stormed by a British force 1803, since which date it has remained in the possession of the British. The heat at B. is often excessive, and the situation is regarded as unhealthful. B. has considerable trade with Bombay and Surat—principal exports, raw cotton, grain, and seeds. It was long famous for its manufactures of cloth; but that of the finer kinds has fallen off very much, in consequence of the importation of English goods. Many of the weavers of B. are Parsees, of whom also are some of the more opulent classes, such as ship owners and ship brokers. B. has a remarkable institution—a Brahmanical hospital for sick animals, into which horses, dogs, cats, monkeys, peacocks, and even insects are received. It is ostensibly attended by a number of Brahmans, who derive a good income from lands devoted to it, and from voluntary contributions. Pop. at present, within the walls, est. 15,000; including the suburbs (1890) 36,932; pop. of collectorate (1881) 326,930; (1890) 350,322.

BAROCHE, *bá-rosh'*, **PIERRE-JULES**: 1802, Nov. 8—1870; b. Paris: eminent French politician. He passed as an advocate 1823, and distinguished himself by his talents as a pleader. In 1847 he was sent to the chamber of deputies as representative of Rochefort, took his position among the moderate reform party, and was one of those who signed the

BAROCO—BAROLITE.

accusation drawn up against the Guizot ministry. During the republic, he voted at first with the democratic party, but afterwards supported General Cavaignac, and after Dec. 10, the politics of Louis Napoleon. B. was now made procureur-général of the republic at the Paris appeal court. In 1850, March, he succeeded Ferdinand Barrot as minister of the interior, after which he became a decided Bonapartist. In 1851, April, he was appointed minister of foreign affairs, with Leon Faucher as colleague. After the *coup-d'état* of 1851, Dec. 2, B. accepted the vice-presidency of the Consultative Commission, and was authorized to make known officially the result of the *plebiscitum*. He became minister of foreign affairs 1860, minister of justice and public worship 1863, and received the grand cross of the Legion of Honor 1855. He d. on the island of Jersey.

BAROCO, n., or BAROKO, *ba-rō'kō* [a word without etymological meaning, but designed to have the vowels symbolic]: in *old logic*, the fourth Mode of the Second Figure of syllogisms.

BARODA, *bā-rō'da*: city of Guzerat, cap. of the state of B.; 40 m. from Tunkaria, and 148 n. of Bombay, with which it is connected by railway. It stands on the Biswamintri, here crossed by a stone bridge of singular construction—an upper range of arches resting on a lower. B. is the residence of the Guicowar, a protected Mahratta prince; occupies an important position between the coast and the interior, and has considerable trade. In 1873, numerous complaints having been made to the British government about the misrule of the Guicowar, Malhar Rao, a commission was appointed to examine into the state of affairs, and as a result, the Guicowar was allowed 18 months in which to reform his administration. His misrule, however, continued, and a suspected attempt to poison Colonel Phayre, the British resident at his court, led to his arraignment before a mixed British and native tribunal 1875. The court was divided in opinion as to his guilt, but the British government deposed the Guicowar for his obvious misrule. Pop., city (1901), 103,790; state, 1,950,927.

BAROGRAPH, n. *bār'ō-grāf* [Gr. *baros*, weight; *grapho*, I write]: instrument which records variations of atmospheric pressure. To the lever of a counterpoised barometer is attached an arm carrying a pencil in contact with a sheet of paper, and moved by clockwork. Thus is produced a trace, with changes of form according to the variations of pressure. There are other forms of B. In one, a ray of light is directed on the upper part of the barometric tube, where it falls upon a moving ribbon of sensitized paper: the rise and fall of the mercury in the barometer causes the beam of light to be increased or diminished in width, and so shows the changes in the barometer by the continuous photographic record. BAROGRAPHIC, a., pertaining to a barograph.

BAROLITE, n. *bār'ō-līt* [Gr. *barus*, heavy—from *baros*, weight; *lithos*, a stone]: a carbonate of barium—also called Witherite, from its discoverer

BAROMETER.

BAROMETER, n. *bă-rôm'ě-tēr* [Gr. *baros*, weight; *metron*, a measure]: an instrument which indicates the pressure and weight of the atmosphere, and is used to ascertain the heights of mountains, or to give warning of changes in the weather. **BAROMETRIC**, a. *băr'ō-mět'rik*, or **BAROMETRICAL**, a. *-rĭ-kāl*. **BAROMETRICALLY**, ad. *-kāl-ĭ*. **BAROMETRY**, n. *bă-rôm'ě-trĭ*. **ANEROID BAROMETER**, *ăn'ēr-oyd* [Gr. *a*, without; *neros*, moist; *eidos*, a form]: a barometer which indicates the varying pressure of the atmosphere, not by the varying height of a column of a fluid, but by the compression and expansion of a small metal vessel. **BAROMETROGRAPH**, n. *băr'ō-mět'rō-grăf* [Gr. *baros*, weight; *metron*, a measure; *graphe*, a drawing, a delineation, a picture]: an instrument used for automatically inscribing on paper the variations of the barometer.

BAROMETER: instrument for measuring the weight or pressure of the atmosphere. The term generally designates an instrument in which the measure is the height of a column of liquid sustained by atmospheric pressure. The fundamental principle of the B. is best shown in the experiment which led Torricelli to the first discovery of the pressure of the air. A glass tube, about 33 inches in length, open at one end, is completely filled with mercury, and, being firmly closed by the thumb, is inverted and placed vertically in a cup containing mercury. When the thumb is removed, the mercury sinks in the tube till it stands, usually, about 30 inches above the level of the mercury in the cup, leaving in the upper part a space free of air, which receives the name of the Torricellian vacuum (fig. 1). The mercury within the tube being thus removed from the pressure of the air, while that in the cup is exposed to it, the column falls, till the pressure at the section of the whole, in the same plane as the surface of the mercury in the cup, is the same within and without the tube. A similar experiment is when, in a U-shaped tube, having one branch much wider than the other, a column of mercury in the narrow branch balances a column of water nearly 14 times as high in the other. In the Torricellian experiment, the air and the space occupied by it take the place of the wide water branch of the U-shaped tube, the glass tube and mercury forming the narrow branch, as before; the narrow branch, however, in this case being closed above, to prevent the air from filling, as it were, both branches. In both cases, the heights of the columns are inversely as the specific gravities of the liquids of which they consist; and as air is about 10,000 times lighter than mercury, the aerial column may be inferred to have a height 10,000 times 30 inches. It will be found, under **ATMOSPHERE**, that from the air lessening in density as its height increases, its height is considerably greater. Any changes that take place in the height or density of the aerial column will be met by corresponding changes in the height of the mercurial column, so that as the latter rises or falls, the former increases or diminishes. This simple tube is thus an infallible index of the varying amount of atmospheric pressure, in fact, a per-

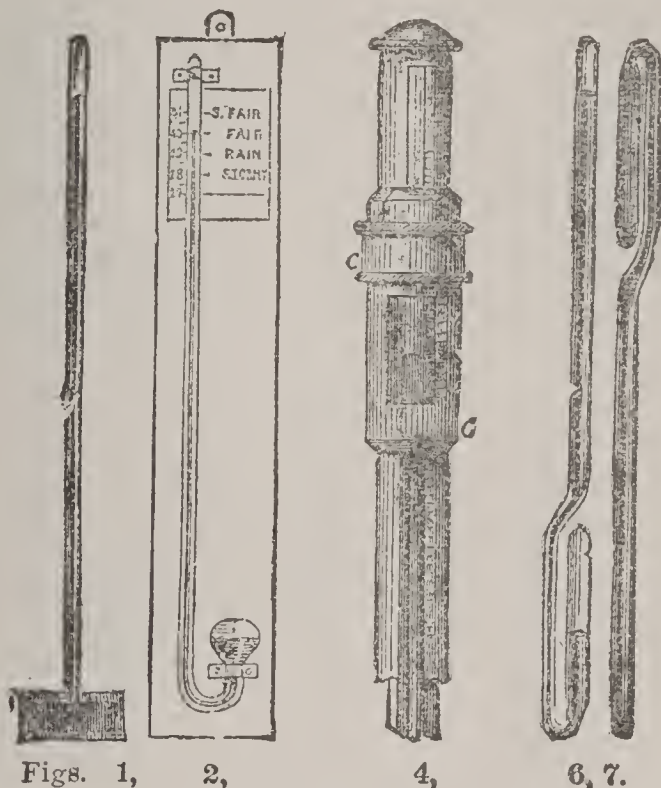
fect barometer. The changes, however, are indicated on a scale at least 10,000 times diminished, so that the variations in the tube show very considerable changes in the weight of the atmosphere. If water be used instead of mercury, the water column would be 14, or, more correctly, 13.6 times as high as the mercurial column, or about 34 feet; and the scale on which the changes take place would be correspondingly magnified, so that a water B. should be much more delicate than a mercurial one. Water is, however, exposed to this serious objection, that its vapor rises into the empty space above, and causes by its elasticity a depression of the column, the depressions being different for different temperatures. At zero, Fahrenheit, for instance, the depression thus arising would be $\frac{1}{2}$ an inch, and at 77°, more than 1 ft. It would be doubtful, likewise, at the time of any observation, whether the space referred to was filled with vapor of the elasticity corresponding to the observed external temperature or not, so that the necessary correction could not with certainty be made. The vapor of mercury, on the other hand, at 77°F.—a temperature considerably above the average—produces in the B. a depression of only $\frac{1}{1250}$ of an inch, an amount practically inappreciable. After 200 years of experience and invention, there is yet no better index of the pressure of the atmosphere than the simple mercurial column of Torricelli, and in all exact observations it is taken as the only reliable standard.

Simple as the B. is, its construction demands considerable care and experience. It is of the first importance that the mercury to be used be chemically pure, otherwise its fluidity is impaired, and the inside of the tube becomes coated with impurities in such a way as to render correct observation impossible. Mercury as usually sold, is not pure; and before being employed for barometers, must be shaken well with highly dilute but pure nitric acid, to remove extraneous metals and oxides. The same object is effected more thoroughly by keeping it several weeks in contact with the dilute acid, stirring every now and then. After either process, the metal must be thoroughly washed with distilled water, and dried. In filling the tube, it is essentially necessary to get the column free from air and moisture. To effect this, the mercury, after filling, is boiled in the tube, so that air and moisture may be expelled, partly by the heat, partly by the vapor of the mercury. This process demands great experience and skill, but the same end may be more easily and as effectually attained by boiling the mercury, in the first instance, in an atmosphere of carbonic acid, and then pouring it into the previously heated tube by a filler reaching to the bottom of it. Such care is expended only on the best instruments; ordinary weather-glasses, not needing to be quite accurate, are more simply filled. Notwithstanding all these precautions, minute bubbles of air are liable to keep secreted, and to creep up in the course of time into the Torricellian vacuum. To obviate this risk of error, an air-trap is recommended by which any air that may accidentally find its way into the

BAROMETER.

tube is arrested in its ascent to the top, and the instrument sustains no damage from the accident.

Barometers are usually divided into two classes—cistern barometers, and siphon barometers. The simplest form of the cistern B. is that shown in fig. 1, which requires only to be set properly in a frame, and provided with a scale, to make it complete. Fig. 2 presents another form of that class, being that generally seen in weather-glasses or ordi



nary barometers. The tube is bent at the bottom, and the cistern is merely an expansion of the lower end. Very generally, the cistern is hidden from view, and protected from injury by a wooden cover in front. There are two causes of inaccuracy in cistern barometers—one being the capillarity, which tends to lower the column; and the other being the difference of level in the cistern caused by the fluctuations in the tube, which renders the readings on the fixed scale above at one time too great, and at another too small, according as this level rises above or falls below the original level from which the scale was measured. The effect of capillarity may be avoided by using tubes of more than half an inch in bore, in which the depression becomes so small, that it may be left out of account; and in smaller tubes it may be estimated from tables constructed for the purpose. Wide tubes have the additional advantage, that atmospheric changes are seen earlier in them than in narrow tubes, there being less friction in the former than in the latter. It is worthy of notice, that the capillary depression is less in boiled than in unboiled tubes, in consequence of the admixture of a minute quantity of the oxide of mercury, formed in the process of boiling, which lessens

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the repulsion between the mercury and glass. With reference to the error of level, it must be borne in mind that the height of the column sustained by the atmosphere is always to be reckoned from the lower level. This error becomes all the less the larger the capacity of the cistern is compared with that of the tube, for then a very considerable rise or fall in the tube, when spread over the surface of the cistern, makes only a slight difference of level in it. Care must be taken, then, in ordinary barometers, to make the cistern as large as possible. The only B. in which the error of level is completely obviated is that invented by Fortin, which is in every respect the most perfect cistern B. The cistern and the lower portion of the tube of this B. are shown in fig. 3. The cistern is of boxwood, with a movable leather bottom *bb*, and a glass cylinder is inserted into it above, all except the glass being encased in brass. In the bottom of the brass box a screw works, on the upper end of which the leather rests, so that by the sending in or taking out of

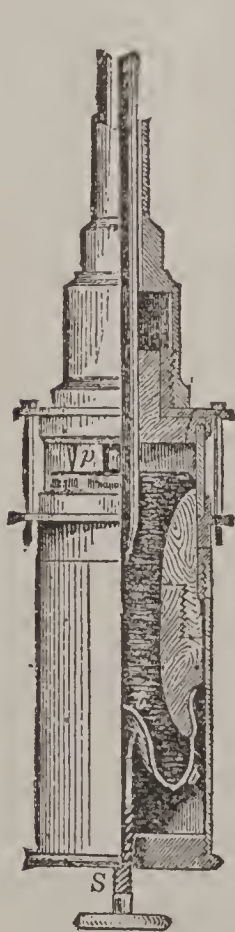


Fig. 3.



Fig. 5.

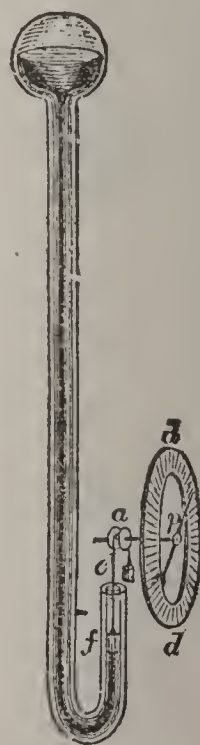


Fig. 8.

the screw, the bottom of the cistern, and with it the cistern level of the mercury, can be raised or depressed at will. A small ivory pin, *p*, ending in a fine point, is fixed to the upper frame of the cistern; and when an observation is made, the surface of the mercury is made to coincide with the point of the pin as the standard level from which the barometric column is to be measured. The tube of the B.—

the upper part of which is shown in fig. 4—is enclosed in one of brass, which has two directly opposite slits in it for showing the height of the column, and on the sides of these the graduation is marked. A brass collar, *cc*, slides upon the tube with a vernier (*q.v.*), *vv*, marked on it for reading the height with the greatest exactness, and in which two oblong holes are cut, a little wider than the slits in the brass tube. When a reading is taken, the collar is so placed that the last streak of light is cut off by the two upper edges of the holes, or until they form a tangent to the convex mercurial curve. By this means, the observer is sure that his eye is on a level with the top of the column, and that the reading is taken exactly for this point. This is the contrivance usually adopted to prevent the error of parallax, or that caused by the eye being slightly above or below the top of the column, by which the scale and the top of the column are projected too high or too low, the one upon the other, as the case may be. The only other arrangement worthy of mention for the same purpose is by Weber, who etches the scale on a piece of silverized glass placed over one side of the tube; and when—the mirror and tube being vertical—the image of the eye appears along with the vertex of the column, the eye is in the same horizontal line with it. Fortin's B. is generally arranged so as to be portable, in which case the screw, *s*, is sent in until the mercury fills the whole cistern, by which the air is kept from entering the tube during transport, the leather yielding sufficiently at the same time to allow for expansion from increase of temperature. It packs in a case, which serves as a tripod when the instrument is mounted for use. On this tripod it is suspended about the middle, swinging upon two axes at right angles to each other, so that the cistern may act the part of a plummet in keeping the tube vertical—the position essential to all correct measurements.

The siphon B. consists of a tube bent in the form of a siphon, having the same diameter at the lower as at the upper end. Fig. 5 represents a simple form of it. The tube travels along the board on which it is placed by passing easily through fixed rings or collars of brass. A scale, divided in inches, and parts of an inch, is fixed on the upper part of the board; and when an observation is taken, the tube is adjusted by the screw, *s*, working below it, so that the top of the lower mercurial column may be on a level with the fixed mark, *a*, which is the point from which the fixed scale is measured. In the best forms of the siphon B., both tube and scale are fixed, the latter being graduated upwards and downwards from a zero-point near the middle of the tube, and the height of the column is ascertained by adding the distances from it of the upper and lower levels. The siphon B. is in many respects a more perfect instrument than the cistern barometer. In the first place, the bore at the upper and lower ends of the tube being the same, the depression arising from capillarity is alike for both, and the error from this cause disappears in taking the difference of the heights. In the second place, since the final reading is got from a reference to both upper and

lower surfaces, the error in the cistern B. produced by the different capacities of the tube and cistern, is avoided. On the other hand, the taking of two readings, one for each column, is a serious addition to the labor of observation. Gay-Lussac's siphon B. (fig. 6) is bent near the bottom, so as to allow of the lower branch being placed in the same straight line as the upper one—a position highly favorable to accurate observation. When constructed for transport, the tube at the bend is narrowed, as in the figure, to a capillary width, which effectually excludes the air; and when the tube is inverted (fig. 7), being the position in which it is carried, the mercury is nearly all held in the longer branch. Such a tube when mounted, like Fortin's B., makes an excellent travelling instrument, and is comparatively light, from the small quantity of mercury it contains. See ANEROID BAROMETER.

The wheel B., originally invented by Hook, and generally seen as a parlor ornament, has little to recommend it as a trustworthy instrument. Fig. 8 shows the main features of its construction. It is essentially an ordinary B. like the siphon B. below, but having a cistern above, to increase the amount of variation in the lower branch. A small piece of iron or glass, *f*, floats on the open surface, and a thread is attached to it, and passed over a small wheel, *a*, fixed to a horizontal axis, to which it is kept tight by a small weight, *c*, hanging at the other end. A pointer, *p*, is fixed to the other extremity of the horizontal axis, which moves to the right or left of the dial, *dd*, according as the mercury falls or rises in the lower branch. The great sweep which the index takes, as compared with the comparatively minute variations of the mercurial column, is the only merit of this instrument, while with so much intervening between the mercury and the index, the chances of error from friction and other causes are considerable.

The correction of the B. for temperature is important. Mercury expands $\frac{1}{9990}$ of its bulk for every degree Fahrenheit; consequently, a column of 30 inches at 32° F., or the freezing point, would, at 65° F., for instance, be $\frac{65-32}{9990}$ times 30 inches, or nearly $\frac{1}{10}$ of an inch longer, for 30 $\frac{1}{10}$ inches of mercury at 60° produce the same pressure as 30 inches of it at 32°. In order, therefore, that all observations may be compared correctly with each other, the observed heights are reduced to what they would be at 32° F. as a standard temperature. The rule for reduction is—Multiply the number of degrees above or below 32° F. by the observed height, divide the product by 9990, and subtract or add the quotient from or to the observed height for the reduced height. Tables for this purpose have been published by the Royal Society, from which the corrections are found at once.

The variations of the B. are both periodical and irregular. Periodical variations are those at stated and regular intervals; irregular are such as have no regular period of recurrence. The only truly periodical variation is the daily one, which varies from 0.150 to 0.001 inch. In most regions

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of the globe there is also a well-marked annual variation, widely different for different regions. Accidental variations have a range of about 3 inches. See ATMOSPHERE.

The uses of the B. may be classified into physical, hypsometrical, and meteorological. It is of essential use in all physical researches where the mechanical, optical, acoustical, and chemical properties of air or other gases are dependent on the pressure of the atmosphere. Its use in hypsometry, or the art of measuring the heights of mountains, is very valuable. When a B. is at the foot of a mountain, the pressure it sustains is greater than that which it experiences at the top by the weight of the column of air intervening between the top and bottom. A formula of considerable complexity is given by mathematicians for finding very nearly the true height of a mountain from barometrical and thermometrical observations made at its base and summit; it does not come within the compass of this work. The following rules give very nearly the same result: 1. Reduce the mercurial heights at both stations to 32° F. 2. Take the logarithms of the corrected heights, subtract them, and multiply the result by 10,000, to give the approximate height in fathoms of the upper above the lower station. 3. Take the mean of the temperature at both stations, take the difference between this mean and 32, multiply the difference by the approximate height, and divide the product by 435. This last result is to be added to the approximate height, if the mean temperature is above 32, and subtracted, if below, to find the true height in fathoms. A Fortin's or Gay-Lussac's B. is employed in measuring heights.

The best known use of the B. is as a meteorological instrument, or as a weather-glass. Opticians have attached to certain heights of the B. certain states of weather, and at certain points of the scale the words 'Rain,' 'Changeable,' 'Fair,' etc., are marked; but the connection thus instituted is very misleading. Those who have observed most carefully the connection of barometric heights with changes of weather, discard entirely the use of these terms, and state that it is not the actual height of the B. at any place, but this height as compared with that of surrounding regions which indicates the coming weather. Several elaborate codes of rules have been drawn up to serve as a key to the variations, but these are more or less local. Generally speaking, a falling B. indicates rain, a rising B., fair weather. A steady B. foretells a continuance of the weather at the time; when low, this is generally not fair; and when high, fair. A sudden fall usually precedes a storm, the violence of which is in proportion to the barometric gradient. An unsteady B. shows unsettled weather; gradual changes, the approach of some more permanent condition of it. The variations must also be interpreted with reference to the prevailing winds, each different wind having some peculiar rules. The connection between changes of weather and the pressure of the atmosphere is by no means well understood. One reason is given, which may to some extent account for the B. being lower in wet than in dry

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weather—viz., since, as has been shown by Dalton, moist air is lighter than dry air, wherever a large amount of aqueous vapor has displaced a part of the drier air, the barometric column will read relatively low. Hence much depends on the nature of the winds. The e. and s. winds, which are, in North America, more than any other, the rain-bringing winds, are warm and moist winds. Now, a column of such air, to be of the same weight as one of cold dry air, must be higher; but this it cannot well be in the atmosphere, for no sooner does the warm moist column, by its lightness, rise above the surrounding level of the upper surface of the aerial ocean, than it flows over, and becomes nearly of the same height as the cold air around it. The interchange taking place less interruptedly, and consequently less slowly, in the higher strata than in those near the ground, it is some time before the equilibrium thus disturbed is restored, and meanwhile the B. keeps low under the pressure of a rarer atmospheric column. On the other hand, the w. and n.w. winds in North America, being comparatively cold and dry, are accompanied with fair weather and a high barometer. It is thus to the warmth, as well as to the moisture of these winds that the low pressure is to be ascribed. In Great Britain a high and rising B. frequently accompanies e. winds with a drenching drizzle; but on the La Plata river, the case is reversed; there the cold s.e. wind, from the ocean, brings rain with a high barometer; and the land winds, warmed by the plains of South America, maintain fine weather with a low barometer. That the temperature, as well as the moisture of the air, is at least an important cause of the changes of the B., is shown also by the fact, that, in the tropics, where the variations of the temperature are slight compared with the temperate zones, the B. experiences almost no change. In central Asia, the summer pressure is nearly an inch less than that of winter, and at Deniliquin, towards the interior of Australia, it amounts to 0.250 inch.

BAROMETZ, *băr'o-měts* (or Tartarian or Scythian Lamb): the prostrate stem (rhizome) of a fern (*Aspidium Barometz*) which grows in the salt-plains near the Caspian Sea. It is shaggy with a silky down, and has a sort of general resemblance to an animal. In the days of ignorant credulity, when the story of the phoenix was received as a truth of natural history, and barnacles were believed to grow into geese, and horses' hairs into eels, marvellous tales were told of the B., which was supposed to partake of the natures of a plant and an animal, to grow on a stalk, and eat grass like a lamb, etc. Erman (*Travels in Siberia*) supposes that the fables regarding the B. may have some connection with the cotton plant.

BARON.

BARON, n. *băr'ôn* [F. *baron*; Norm. F. *baran*; It. *barone*; Sp. *varon*; mid. L. *barōnem*, originally signifying man or husband: Gael. *baran*, a great man]: a rank of nobility next to a viscount; two sirloins not cut asunder. **BARONAGE**, n. *băr'ôn-āj*, the whole body of barons and peers; the dignity or estate of a baron. **BAR'ONESS**, n. the wife of a baron. **BARONY** n. *băr'ô-nĭ*, the lordship of a baron; a division of a county in Ireland answering to an English hundred. **BARONIAL**, a. *bă-rô'nĭ-ăl*, pertaining to a barony. **BARONET**, n. *băr'ô-nĕt*, the title next below a baron, established in England as an order in the reign of James I. **BARONETAGE**, n. *băr'ô-nĕt-āj*, baronets as a body; the dignity of a baronet. **BARONETCY**, n. *băr'ô-nĕt-sĭ*, the title and dignity of a baronet.

BAR'ON: a term probably derived from the Latin word *baro* (allied to *vir*, a man, a hero), which originally signified a stupid, brutal man, afterwards came to signify a man simply, and latterly, by one of those strange transmutations, not uncommon in language, a man pre-eminently, or a person of distinction. Teutonic, Celtic, and even Hebrew derivations also have been assigned to the word; but the fact of its having been introduced into England by the Normans, seems in favor of a Romanic origin. It is now the title of the lowest degree of hereditary nobility. The degree of B. forms a species of landing-place, corresponding among noblemen, in a certain sense, to that of gentleman, at a lower stage of the social pyramid. It was in this sense that the word was used in former times to include the whole nobility of England, because all noblemen were barons, whatever might be the higher ranks in the peerage which they occupied. The word peer has recently come to be used with the same signification, perhaps because it is no longer necessarily the case that every nobleman should be a B., there being instances in which earldoms and other honors have been given without a barony being attached to them, and in which the barony has been separated from the higher degree by following a different order of descent. The general theory of the British constitution, however, still is, that it is as barons that all the peers sit in the upper house; and it is on this ground that the archbishops and bishops are said to sit in virtue of their baronies. The distinction into *greater* and *lesser* barons seems from an early period to have obtained in most of the countries of Europe. The greater barons, who were the king's chief tenants, held their lands directly, or *in capite*, as it was called, of the crown; while the lesser held of the greater by the tenure of military service. The greater barons, who corresponded to the *Freiherren* (free lords) of Germany, had a perpetual summons to attend the great councils of the nation; whereas the latter were summoned only in case of their lands embracing a certain extent, which in England was thirteen knights' fees and a quarter. See **KNIGHT'S FEE**. When the representation of the middle class in England came to be confided to the knights of the shire and burgesses of towns, the minor barons ceased to receive the royal sum-

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mons, and by degrees the title B. came to be applied to the greater barons, or lords of parliament, as they were called, exclusively. For an account of the barons of England immediately after the Conquest, and of the lands which they held, see DOOMSDAY-BOOK. The habit of conferring the rank of B. by letters-patent, by which it was converted into a mere title of honor, apart from the possession of landed property or of territorial jurisdiction, was introduced by King Richard II., who, 1388, created John Beauchamp, of Holt Castle, B. of Kidderminster. In Germany, the old barons of the empire were for the most part raised to the dignity of *grafs* (counts) and princes; while the lesser, in place of passing into the ranks of the untitled gentry, as in England, constituted a grade of the lower nobility, to which no duties were assigned, and scarcely any political privileges belonged.

The right of wearing a coronet was conferred on barons first by King Charles II.

A baron's coronet is adorned with six pearls, set at equal distances on the chaplet. Coronets are worn only on great occasions of state ceremonial. In ordinary garb, there is nothing to distinguish a B. from a commoner. A B. has the title of Right Honor-



Baron's Coronet.

able Lord,' etc., and is addressed as 'My Lord,' or 'Your Lordship.' His wife has also the title of 'Right Honorable,' and is addressed as 'Madam,' or 'Your Ladyship.' A B., in signing, sinks his Christian and family surname, and subscribes his titular designation. His children enjoy the prefix of Honorable, as the 'Honorable' (mentioning Christian and surname). In literature and conversation, a deceased B. is referred to by his Christian name, according to his number in the list of peers of the same title, as 'Henry, eighth baron.' See PEER.

BARON AND FEME (or FEMME), *fēm*: two Norman-French words used in English law-books to denominate HUSBAND AND WIFE (q.v.): see also MARRIAGE.

BARON AND FEMME, in Heraldry: designates the bearing by which the arms of husband and wife are carried *per pale*, or marshalled side by side on the same shield. The husband's arms are always carried on the dexter side. Where the wife is an heiress—i.e., the representative of her father's house—her husband carries her arms, not *per pale*, but in a shield of pretense; and they are quartered with the paternal coat by the issue of the marriage.

BARONET: the diminutive of *Baron*, marking the lowest degree of hereditary honor in the United Kingdom. Baronets were instituted, first, by James I. 1611, May 22. The ostensible object was to promote the plantation of Ulster, in Ireland, with English and Scottish settlers; but the real aim was to raise money. Each B. was bound to maintain 30 soldiers in Ireland for three years, at the rate of 8d. per diem for each man; the wages of one whole year to be paid into the exchequer on the passing of the patent. The sum thus exacted, with the fees of honor due to the officers,

amounted to upwards of £1,000 on each patent. It is a striking proof of the passion for hereditary distinction, that 200 persons were willing to accept the honor on such terms. It was part of the bargain that no title should be created between a B. and a baron, and that the number of the former should be permitted to diminish as the families of the original 200 died out, thus enhancing the value of the title to those that remained. But the latter stipulation was very speedily departed from, and a new commission was appointed to fill up the vacant places, and even to treat with new applicants. Such was the origin of English baronets. From the date of the Union, 1707, those created in England and Scotland were baronets of Great Britain. Irish baronets were created until 1800, since which period all baronetcies are of the United Kingdom. There is no limit to the creation of baronets but the will of the sovereign. At investiture there is no ceremony. The rank is communicated by patent or writ, issued under authority of the crown; the fees of office being considerable. There are differences in the terms on which the honor descends (suggested, perhaps, by the recipient according to family circumstances). Sometimes, according to the patent, the rank is confined to direct heirs-male; sometimes it embraces heirs-male collateral; sometimes, in default of direct male heirs, it passes to the husbands of heirs-female. For the style and privileges of baronets, in matters of ceremony, see Burke's *Peerage and Baronetage*. Baronets have precedence of all knights, except those of the Garter, bannerets made under the royal banner in open war, and privy-councillors. They are entitled to have *Sir* prefixed to their name, with Baron as an affix. The wife of a B. is legally styled *Dame*; but in common speech she is called Lady, and addressed as 'Your Ladyship.' The rank of B. does not raise a person above the degree of commoner; but many baronetcies have, in course of time, been heritably acquired by peers, which lessens the ostensible number.

Baronets of Scotland and Nova Scotia originated in a project of James I.; but were not instituted till 1625, by Charles I. The professed object was to encourage the settlement of Nova Scotia in N. America; and a grant of a certain portion of land in that province, to be held of Sir William Alexander, afterwards Earl of Stirling, who was then his majesty's lieutenant in Nova Scotia, actually accompanied the title—the grants of land being of course illusory, for their very designations were a fiction. The first person who received the honor of a Nova Scotian baronetcy was Robert Gordon of Gordonstone, a younger son of the Earl of Sutherland, whose patent bears date 1625, May 28. There are no new additions to this branch of the baronetage; the latest creation having been in 1707, the year of the Union of Scotland and England. In point of title and popular recognition, there is no distinction between these and other baronets.

BARONIUS, *bâ-ro'nî-ŭs*, CÆSAR: 1538, Oct. 30—1607, May 30; b. Sora, in Naples; educated in Naples and Rome

eminent Roman Catholic ecclesiastical historian. He was one of the first pupils of St. Philip Neri, who founded the congregation of the Oratory, of which B. became superior in 1593. He soon afterwards became Father Confessor to the Pope, Apostolical Prothonotary, and finally, 1596, Cardinal, and Librarian of the Vatican Library. On the death of Clement VIII., 1605, in conclave, 30 cardinals voted for the election of B. as Pope; and but for the opposition of the Spaniards, who were indignant at him for his treatise *De Monarchia Siciliæ*, in which he argued against Spain's claim to that country, he might have been elected. The controversy against the work called the *Magdeburg Centuries* (q.v.), which had already been weakly attempted by Muzio, 1570, seemed at that time the most important undertaking for the learning of the Church of Rome. B. entered upon this controversy with great energy and in a position most favorable for access to authorities, composing his *Annales Ecclesiastici a Christo nato ad ann. 1198* (12 vols., Rome, 1588-1607), in which work he labored till his death. As his object was to prove that the Church of Rome has not departed in doctrine or constitution from the Christian Church of the 1st c., B. has been accused of not using his authorities according to their proper historical sense, but artfully concealing, obscuring, and falsifying many things—sometimes, perhaps, from ignorance of the Greek, but more frequently with design. His *Annals* have been frequently reprinted, but the reprints are often incorrect and incomplete. The most recent, provided with copious notes, etc., and containing Pagi's *Critical Examination* and Rinaldi's continuation, although not yet entirely correct, is the edition of Mansi (43 vols., 1738-57). The *Critica in Annales Ecclesiasticos Baronii* of Anthony Pagi, the Franciscan (4 vols., Antwerp, 1705, improved by Francis Pagi, Antwerp, 1724), corrects B. in many points, especially of chronology. Among the continuations of the *Annals*, all of which are inferior in value to the work itself, the most rich in matter are that of Bzovius, extending to 1572 (9 vols., Rome, 1616-72), and that of Rinaldi (10 vols., Rome, 1646-77), who availed himself of the materials left by B., for the period 1198-1571. Among the other works of B., his publication of the *Martyrologium Romanum* deserves to be noticed (Rome, 1586, and repeatedly).

BARON OF BEEF: a large piece of beef, consisting of both sides of the back, or a double sirloin, and weighing, according to the size of the animal, from 50 to 100 lbs. This monstrously large piece of beef, roasted, is served only on particular festive occasions at the English court, and at great public entertainments. When served according to ancient custom at civic feasts in Guildhall, London, the B. is honored with a distinguished place on a kind of elevated rostrum, where it is ceremoniously carved for the assembled guests. The term B. probably originated in a fanciful allusion to the word sirloin; inasmuch as a *baron* is superior in rank to a *sir*.

BARONS OF THE EXCHEQUER—BARQUE.

BAR'ONS OF THE EXCHEQ'UER: see EXCHEQUER, COURT OF: COMMON LAW: COMMON LAW, COURTS OF: REVENUE.

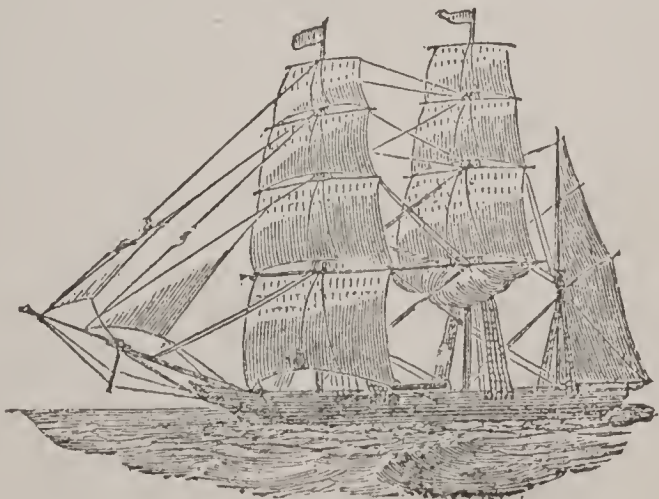
BAR'ONY: a manorial and hereditary right arising out of land, known to the law both of England and of Scotland. In England, manors were formerly called baronies. In the Scotch law, a right of B. is a right in relation to lands which have been erected, or at least confirmed by a clause in crown-charters making the grant *in liberam baroniam*, as it is called; and by the crown alone could such a right be conferred. It involved a civil and criminal jurisdiction to which, in theory, all the inhabitants of the B. lands were amenable. But such jurisdiction has, by modern legislation, been so limited and obstructed as scarcely ever to be exercised; and, indeed, in regard to the right of B. itself, the clause in crown-charters erecting baronies has, since the abolition of heritable jurisdictions by the 20th Geo. II. c. 43, become obsolete. But they are permitted on the sea-coast for encouragement of fisheries, and the bailies thereof (see BAILIE) are to have the powers of justices of the peace. In England, the lord or baron of the manor may hold his COURT BARON (q.v.: see also MANOR). For the B. in Ireland, see LOCAL GOVERNMENT.

BAROSCOPE, n. *băr'ō-skōp* [F. *baroscope*—from Gr. *baros*, weight; *skopeō*, to look at, to behold]: an instrument, designed to show that bodies in air lose as much of their weight as that of the air which they displace. It consists of the beam of a balance with a small weight at one end, and a hollow copper sphere at the other. If these exactly balance each other in the air, then the sphere preponderates in a vacuum. BAROSCOP'IC, a. *-skōp'ik*, pertaining or relating to a baroscope; ascertained by means of a baroscope.

BAROS'MA: see BUCHU.

BAROUCHE, n. *bă-rôsh'* [Ger. *barutsche*: mid. L. *bir'otă*—from *bis*, twice; *rōta*, a wheel]: a four-wheeled carriage with a falling top.

BARQUE, or now usually BARK (q.v.): name frequently



Barque.

BARQUESIMETO—BARRA.

given to ships, but with no very definite meaning. Sometimes it denotes a ship of small size; sometimes a broad-sterned vessel without a figure-head; but more technically it applies to three-masted vessels whose mizzen-sails are fore-and-aft instead of being square. An *armed B.* is one variety of a special sort of vessel. See ARMED SHIP.

BARQUESIMETO, *bâr-kû-êê-mă'tô*: city of Venezuela, cap. of the province of B. It is on an affluent of the Portuguesa, in a high plain, 156 m. w.s.w. from Caraccas. B. was founded by the Spaniards, 1522; and in the beginning of the 19th c. was a flourishing town, with straight wide streets and some fine buildings, with a pop. about 15,000; but in 1802, it was almost totally destroyed by an earthquake. The existing town has been built mostly from the ruins. Pop. (1881) 28,918; (1891) 31,476.

BARR, *bâr*, AMELIA EDITH: author: b. Ulverton, Lancashire, England, 1831, Mar. 29; daughter of the Rev. William Huddleston. She was educated in the Glasgow high school; married Robert Barr 1850; came to the United States 1854; lost her husband and three sons by yellow fever in Galveston 1867; removed to New York and began teaching 1869; and published her first story in the *Christian Union* 1871. Her publications have found increasing favor and a widening circle of readers; they include: *Romance and Reality* (1872); *Young People of Shakespeare's Time* (1882); *Chay McPherson* and *Scottish Sketches* (1883); *The Hallam Succession* (1884); *The Lost Silver of Briffault* and *Jon Vadder's Wife* (1885); *A Daughter of Fife*, *The Last of the McAllisters*, *A Bow of Orange Ribbon*, and *Between Two Loves* (1886); *The Squire of Sandal-Side*, *A Border Shepherdess*, and *Paul and Christina* (1887); *Master of His Fate*, *Remember the Alamo*, and *Christopher, and Other Stories* (1888); *Feet of Clay* (1889); *Friend Olivia* (1890); *The Beads of Tasmer*, *A Rose of a Hundred Leaves*, *She Loved a Sailor*, and *A Sister to Esau* (1891); *Love for an Hour is Love Forever*, and *Michael and Theodora* (1892); *The Mate of the 'Easter Bell.'*

BARRA, *bâr'ra*: island near the s. extremity of the Hebrides, belonging to Inverness-shire, Scotland; 8 m. long, 2 to 4 m. broad; in two parts, connected by a low, sandy isthmus. B.-head is in lat. 56° 48' n., long. 7° 37' w. The formation of the island is gneiss, and the s. or, larger part contains a rocky mountain 2,000 ft. high. The light-house on head, loftiest in Great Britain, is 680 ft. above the sea, seen at a distance of 33 m. The people are chiefly Rom. Catholics; they are engaged in fisheries, and the parish includes several adjoining islands. Pop. (1881) 1,869; (1891) 2,181.

BAR'RA: petty Mandingo kingdom of w. Africa, near the mouth of the Gambia. The soil is fertile, though marshy, and is well cultivated. The men are notably of fine proportions. The Brit. port Albreda is on Brit. territory near the river's mouth. Pop. of B., about 2,000,000.

BAR'RA: pleasant suburban town about 3 m. e. of Naples, with numerous fine country residences. Pop. 9,900.

BARRACAN—BARRACUDA.

BARRACAN, n. *băr'ra-kăn* [F. *barracan*—from L.L. *barracanus*—from Arab. *barrakân*, *barkân*, a kind of black gown. Mahn compares with this Per. *barak*, a garment made of camel's hair: Arab. *bark*, a troop of camels: *bârik*, a camel]: a kind of thick strong cloth or stuff resembling camlet. It is used chiefly for outer garments, and is made at Valenciennes, Lisle, Abbeville, Amiens, and Rouen.

BARRACK, n. *băr'răk* [Sp. *barraca*, a cabin or hut; It. *baracca*, a covered shed without walls—from mid. L. *barræ*, stakes or bars: Gael. *barr*, a spike: F. *baraque*]: house for soldiers; used commonly in the plural, having been originally of huts thatched or covered with boughs. Barracks are permanent structures for accommodation of soldiers. In the United States they have usually been log or frame buildings, but those recently built are preferably of brick or stone. The furniture, kitchen utensils, etc., are provided by the govt., as are also an iron bedstead, a mattress, four sheets, pillow and two pillow cases, and chest for private property, for each man. Married soldiers occupy separate buildings specially provided, or they rent private houses. In the new plans for barracks, each man is allowed 800 cubic ft. of air space, and 65 square ft. of floor space. With proper ventilation these allowances may be lessened without danger to health. Large grounds are required for exercise, offices, etc.—In Great Britain barracks are of stone or brick, and the furniture is provided by the war office. Previous to 1792 Brit. soldiers were usually billeted on the people, as it was thought dangerous to isolate the soldiery from the citizenship; but it was contended that that system was vexatious and burdensome, and tended to immorality.

BARRACKPORE, *băr-rak-pôr'*: native town and military cantonment on the e. bank of the Hoogly, 16 m. up the stream from Calcutta. Pop. (1891) 57,330. From the salubrity of its air, B. is a favorite retreat for Europeans from Calcutta, the governor-general having here his country residence. B. appears to have long had this distinction; Mr. Job Charnock, the founder of Calcutta, having erected a bungalow here as far back as 1689. In 1857, B. became famous as the cradle of the formidable mutiny or rebellion of that year. Several regiments of native troops were stationed at Barrackpore. The men objected to biting off the ends of the cartridges for the Enfield rifle, believing according to their religion that paper was polluted by animal fat. The troubles connected herewith—a mere prelude to the fatal outbreak at Meerut in May—commenced about the beginning of February, and grew in intensity, till at last two regiments of Bengal native infantry had to be disbanded—the 19th, March 31; and the 34th, May 5.

BARRACON, n. *băr'ră-kôn* [from *barrack*]: in *Africa*, a fort or castle; an enclosure where newly captured slaves are quartered and where they remain under restraint until carried off by vessels in the slave-trade.

BARRACUDA, n. *băr-ra-kū'da* [Sp. *barrocuda*]: a fish—the *Sphyræna barracuda*, found in the vicinity of the Bahamas and other West Indian Islands.

BARRADA—BARRAS.

BARRADA, or **BURADA**, *bur-rá'dá*: a river of Syria, rising in lat. 33° 50' n., long. 36° e., flowing s.s.e. towards Damascus, above which it divides, one branch being diverted to irrigate the city and its gardens, while the other passes on the n. side. The branches, which it is supposed were the *Pharpar* and *Abana* of Scripture, afterwards unite, and flow into the marshes and lake of Bahr-el-Merj.

BARRAFRANCA, *bár-rá-frán'ká*, town of Sicily, province of Caltanissetta, about 10 m. s.e. of the town of Caltanissetta; pop. about 9,000.

BARRAGE, n. *bǎr'raj* [F. *barrage*]: an artificial obstruction placed in a water course to obtain increased depth of water; a Normandy fabric made of linen interwoven with worsted flowers.

BARRAGON: see **BARRACAN**.

BARRA MANSA, *bár-rá mǎn'sá*: town of Brazil: province of Rio de Janeiro, on the right bank of the Parahiba; 70 m. n.w. of the city of Rio de Janeiro. Pop. 6,000.

BARRANTITE, n. *bár-rǎn'dit* [after *Barrande*, a Bohemian geologist]: a mineral occurring in spheroidal concentric concretions with indistinctly radiated fibres. It occurs at Prizibram, in Bohemia. It is aluminous iron phosphate.

BARRAS, n. *bǎr'rás* [F.]: a substance consisting of resin and oil that exudes from the wounds in fir-trees.

BARRAS, *bá-rá'*, **PAUL-JEAN-FRANÇOIS-NICOLAS**, Count de: 1755, June 30—1829, Jan. 29; b. Foy, Provence: distinguished character of the French Revolution. In his youth he served as a lieut. against the British in India, and after his return home, wasted his property in Paris in dissipation. He eagerly joined the revolutionary party, and was a deputy of the *Tiers État* in the states-general, 1789. He was actively concerned in the storming of the Tuileries, was appointed administrator of the department of Var, and afterwards of the county of Nice. In the Convention, he voted for the death of the king without delay or appeal, and 1793, May 31, declared against the Girondists. The siege of Toulon, and triumph of the revolutionary party in the s. of France, were to a great measure owing to his activity and energy; and after the victory, he was deeply concerned in all the bloody measures which were adopted. Yet he was hated by Robespierre and the Terrorists, as one of the less decided revolutionists; and their overthrow was accomplished mainly by him, the Convention appointing him commander-in-chief, and virtually investing him with the dictatorship for the time. While holding this high office, in which he acted with great decision and vigor, and on the same day on which Robespierre fell, he paid a visit to the temple, and provided for the better treatment of the king's son; he hastened also to the Palais de Justice, and suspended the execution of a large number of persons who had been condemned to death. On subsequent occasions he acted with decision both against the intrigues of the Royalists and the excesses of the Jacobins; and on 13th Vendémiaire (1795, Oct. 5), being again appointed com-

mander-in-chief by the Convention, he called his young friend Bonaparte to his aid, and crushed the sections with merciless discharges of artillery. The Directory being appointed, 1795, Nov., B. was nominated one of the five members, and in this capacity he procured the nomination of Bonaparte as commander-in-chief of the army in Italy. It was he who arranged the marriage of Bonaparte with the widow Beauharnais. On 18th Fructidor (see FRUCTIDOR: FRANCE), he was again invested with the dictatorship, and was again victorious. His authority now became preponderant in the Directory, and he affected the pomp of a king, and began to give splendid entertainments in the palace of the Luxembourg. This continued about two years till the decline of the power of the Directory. After 30th Prairial, Sièyes and he had the whole executive power in their hands; and while B. secretly negotiated, it is said, with the Bourbon princes, demanding a large reward for their restoration, Sièyes, in secret understanding with Bonaparte, brought about the revolution of 18th Brumaire. Notwithstanding the favors he had formerly conferred on Bonaparte, he was now, perhaps unavoidably, an object of suspicion to him, was compelled to remove from the neighborhood of Paris, resided in Brussels, then in Marseille, was banished to Rome, and thence sent to Montpellier, being kept under constant surveillance of the police, and actually found to have been engaged in conspiracies for the restoration of the Bourbons. After the restoration, he returned to Paris, and purchased an estate in the neighborhood of it, where he died. He had acquired a considerable fortune in the Revolution. His Memoirs, which must be of historic importance, were seized by the government.

BARRATOR, n. *băr' ră-tör* [OF. *bareter*, to deceive: Icel. *baratta*, a contest (see BARTER)]: an encourager of lawsuits; a shipmaster who commits fraud. BARRATRY, n. *băr' ră-tri*, a fraud in a shipmaster against the owners or underwriters, as embezzling the goods or running away with the ship. BARRATROUS, a. *băr' ră-trūs*, guilty of the crime of barratry. BAR'RATROUSLY, ad. *-trūs-li*.

BARRATRY, *băr' ra-tri*, COMMON (or in old English law-books, *Barretry*): the offense of frequently inciting and stirring up suits and quarrels among the people. *One* offensive act of the kind is not sufficient in order to maintain an indictment for this offense; but it must be shown that the party accused *frequently*, or at least on more than *one* occasion conducted himself in the way imputed; and therefore the principle of the law appears to strike at the *habit* or *disposition* of evil-minded persons who would incite to quarrelling, or busy-bodies, as they are in fact called in old law-reports; who, to use a familiar expression, 'set people by the ears.' In England, the punishment for this offense is fine and imprisonment; but if the offender belongs to the profession of the law, he may besides be disabled from practicing his profession for the future: thereafter any attempt to practice law exposes him to severe and summary punishment.

In the various states of the Union, the laws are much to the same effect.—Akin to this offense is that of suing another in the name of a fictitious plaintiff. It is an offense also for an attorney to buy demands for the purpose of suing on them. It is not, however, an offense for attorney and client to divide a compensation received.

There is also *Barratry of Mariners*—the fraud of the master or mariners of a ship tending to their own advantage, but to the prejudice of the owners.

BARRE, *băr'rě*: town in Worcester co., Mass., on the Ware river; and on the Boston and Maine railroad, 21 m. n.w. of Worcester. It has important manufactures, 2 banks, 2 weekly newspapers; and is noted for an institution for educating feeble-minded children. Pop. (1890) 2,239; (1900) 2,059.

BARRE *băr'rě*: village of Washington Co., Vt., in town of same name, about 6 m. s.e. of Montpelier, on a branch of the Winooski river. It is on the Barre branch of the Vt. Central Railroad. The village contains 3 churches, a national bank, the Barre Academy, a school called Goddard Seminary, and an iron foundry. The township contains a quarry of good granite, and has also manufactures of forks, plows, woolen goods, ice-tools, sash, etc. Pop. (1880) village 1,025, town 2,060; (1890) village 4,146, town 6,812; (1900) 8,448.

BARRÉ, *bâ-râ'*, ISAAC: soldier: 1726–1802, July 20; b. Dublin, Ireland. He was a graduate of Trinity College, Dublin, and an ensign in the British army, seeing service in Canada during Gen. Wolfe's campaign against the French, being adjutant-gen. 1760. When Wolfe fell, B. was by his side, and he appears in Benjamin West's celebrated painting of the scene. B. afterward went to England, and was elected to parliament. He was credited by some with being the author of the letters of Junius, but this he denied. He died in London.

BARREL, n. *băr'rěl* [F. *baril*; OF. *bareil*, a barrel—from OF. *barre*; W. *bar*, a bar or stave: It. *barile*: Sp. *barril*]: a wooden vessel made of bars or staves; a vessel or cask having more length than breadth, bulging in the middle; a hollow cylinder; a tube, as of a gun-barrel; V. to pack or put into a barrel. BAR'RELLING, imp. BARRELLED, pp. *băr'rëld*. BARREL-BULK, in *shipping*, a measure of capacity for freight, equal to five cubic feet. BARREL-ORGAN, an organ which contains a barrel with pins, by the revolution of which the key-valves are opened and the music produced. BARREL-PEN, a steel pen with a split cylindrical shank adapting it to slip upon a round holder.

BAR'REL: primarily, a large wooden vessel having more length than breadth, made of bars or staves, for holding liquids, and then a certain *measure*; but varying in every locality, and almost for every liquid. In the old English measures, the barrel contained $31\frac{1}{2}$ gallons of wine, 32 of ale, and 36 of beer—the wine gallon itself differing from that of ale and beer. In imperial gallons, their contents would be: old wine barrel = $26\frac{1}{4}$ gal.; ale do., $32\frac{1}{2}$; beer,

BARREL-ORGAN—BARRET.

36½; the Italian barile varies from 7 to 31 English gallons, the French barrique of Bordeaux = 228 French litres = 50 English gallons. Four barriques make a tonneau. In many cases, *B.* signifies a certain *weight* or other quantity of goods usually sold in casks called barrels. In the United States flour and beef are sold on the large scale in barrels: a B. of flour must contain 196 lbs.; of beef, 200 lbs. A B. of butter = 224 lbs.; of soft soap, 256 lbs.; of tar, 26½ gallons.

BARREL-ORGAN: musical organ (see **ORGAN**) in which a barrel or cylinder studded with pegs or staples is made to revolve by means of a crank: as the barrel turns, the pegs open valves through which currents of air from the bellows pass into a set of pipes and produce tune, in melody or harmony. The same contrivance of a cylinder studded with pegs is employed to act on wires like the strings of a piano. There are many complex instruments of the B.-O. kind; but the most familiar illustration of the principle is the hand-organ played by street musicians.

BARREL-PIER: support for a bridge, consisting of a raft of empty barrels, which serve the purpose of pontoons or boats. The barrels for the abutments are joined in a raft at each side of the stream, and made fast to the shore. The intermediate pieces, or rafts of barrels, are anchored at suitable intervals between them. String-pieces or timbers are lashed to the rafts, from shore to shore, and across these are laid planks for the roadway.

BARREL-PLATE, in Machine-guns: disk or plate by means of which the barrels of machine-guns are held in place around the axis. The Gatling gun has two barrel-plates, one at the front, the other at the rear.

BARREL-VAULT, in Architecture: simple semi-cylindrical vault much used anciently, also in the middle ages till the end of the 11th c., when groined arching reappeared.

BARREN, a. *băr'rěn* [OF. *brehaigne* or *baraigne*, unfruitful]: not producing young; not fertile; dull; in *bot.*, without pistil. **BAR'RENLY**, ad. *-lŷ*. **BAR'RENNESS**, n. unfruitfulness; sterility.

BARREN, n.: name sometimes applied in the United States w. of the Alleghany Mts., to a tract of land a few feet above the level of a plain, sparsely wooded and producing grass. The soil is sometimes very fertile.

BARRENWORT, n. *băr'rěn-wŭrt* [Eng. *barren*; *wort*, herb]: name of *Epimedium*, genus of plants belonging to order *Berberidaceæ*. It has a creeping rhizome, a twice ternate stem-leaf with cordate leaflets, reddish flowers in panicles, with inflated nectaries, four sepals, eight petals, four stamina, and curious anthers.

BARRET, n. *băr'rèt* [F. *barrette*—from L. L. *barretum*, *birretum*, dimin. of L. *birrus*, a woolen overcoat used to keep off rain]: a cap formerly worn by soldiers.

BARRETT—BARRICADES.

BAR'RETT, BENJAMIN FISK: minister: b. Dresden, Me., 1808, June 24. He graduated from Bowdoin College 1832, studied theology at the Harvard Divinity School, embraced the doctrines of Swedenborg 1839, held pastorates in New York, Cincinnati, and Philadelphia, and 1871 was elected pres. of the publishing assoc. of his denomination. He has published a large number of books, including *The Golden City* (1874), *Footprints of the New Age* (1884), and *Heaven Revealed* (1885). He was editor of *The Swedenborg Library*, 12 vols. D. 1892.

BAR'RETT, EDWARD: naval officer: 1828–1880, **Mar.**; b. New Orleans. At the age of 13 he became a midshipman; served in foreign waters; entered the U. S. Naval Academy, then recently established, 1846; and graduated the same year. He served in the war with Mexico, commanded the *Jamestown* on an expedition to the African coast 1848, and later served in the E. Indies. In 1861 he received appointment as instructor of gunnery, the following year was court-martialled for disloyalty, but was not only acquitted, but received high praise for his record. He rendered valuable services in the civil war; was a member of the first expedition which reached Hankow, on the Yang-tse-kiang river, China; and commanded the first naval ship that passed the jetties constructed by Eads at the mouth of the Mississippi. By various promotions, he reached the rank of commodore.

BAR'RETT, LAWRENCE PATRICK: actor: b. Paterson, N. J., 1838, Apr. 4. At the age of 15 he appeared in Detroit, played in New York 1856, appeared with Charlotte Cushman and other stars, served in the war, acted with Edwin Booth in New York and John McCullough in Cal., and has played with remarkable success in the large cities of this country and in England. He played the part of the Ghost of Hamlet's father at the grand testimonial to Lester Wallack, New York, 1888. He has published *Life of Edwin Forrest*. D. 1891, Mar. 10.

BARRHEAD, *bár-hěd'*: town of recent growth in the e. of Renfrewshire, 8 m. s.w. of Glasgow. It has cotton-mills, and bleaching and print works. Pop. (1871) 6,200; (1881) 6,448; (1891) 7,053.

BARRI, GIRALD DE: see GIRALDUS CAMBRENSIS.

BARRICADE, BARRIER, BARRISTER: see under **BAR**.

BARRICADES': defense-works employed in both military and naval services. Military engineers, and sappers and miners, are instructed in the art of barricading streets and roads with beams, chains, *chevaux-de-frise*, and other obstacles, either in defending a town against besiegers, or in suppressing popular tumults. In a ship, a strong wooden rail, supported on stanchions, and extending across the foremost part of the quarter-deck, is called a barricade; during a naval action, the upper part of this barricade is sometimes stuffed with hammocks in a double rope-netting, to serve as a screen against the enemy's small-shot. B. have been made

BARRIER ACT.

use of in street fights since the middle ages, but they are best known in connection with the insurrections in the city of Paris. As early as 1358, the streets of Paris were barricaded against the Dauphin, afterwards Charles V. A more noteworthy barricade-fight was in 1588, when 4,000 Swiss soldiers, marched into Paris by Henry III. to overawe the Council of Sixteen, would have been utterly destroyed by the populace, firing from behind B., had the court not consented to negotiation; and the result was, that the king fled next day. The next barricade-fight of importance in Paris was in 1830, which resulted in the expulsion of the Bourbons from the throne of France, and the election of the citizen king, Louis Philippe. During the three days which this revolution lasted, the number of B. erected across the streets amounted to several thousands. They were formed of the most heterogeneous materials—overturned vehicles, trees, scaffolding-poles, planks, building-materials, and street paving-stones—men, women, and children taking part in their erection. In 1848, Feb. the insurrection against Louis Philippe commenced with the erection of B.; but the most celebrated and bloody barricade-fight was that between the populace and the provisional government, 1848, June 23-26, which ended in the defeat of the people. The national losses by this fight were estimated at 30,000,000 francs; 16,000 persons were killed and wounded, and 8,000 taken prisoners. Napoleon III. widened and macadamized many of the principal streets of Paris, partly to prevent erection of B; yet in the second siege of Paris (1871), many were erected by the Communists. B. have been successfully carried in Paris, Berlin, Vienna, and other places, by abandoning the attack in front, and breaking through the houses of contiguous streets, taking their defenders in the rear.

BARRIE, bār'ī, JAMES MATTHEW: author: 1860, May 9, ———; b. Kirriemuir, Forfarshire, Scotland. He graduated at Edinburgh Univ. 1882, and wrote editorials for a paper in Nottingham, England, for nearly two years; then established himself in London as a journalist. He published 1887 his first book, *Better Dead*, which attracted attention; it was followed by *Auld Licht Idylls* and *When a Man's Single* (1888); *A Window in Thrums* (1889); *My Lady Nicotine* (1890); *The Little Minister* (1891); *A Holiday in Bed, and Other Sketches* (1892); and a play, *The Professor's Love Story* (1892). In 1896 he published *Sentimental Tommy*, and *Margaret Ogilvy*—a biography of his mother. *The Little Minister* was dramatized in 1897.

BAR'RIER ACT: name commonly given to an act of the General Assembly of the Church of Scotland, 1697, Jan. 8, intended as a barrier against innovations, and a hinderance to hasty legislation. It provides that no change can be made in the laws of the church without being submitted by that General Assembly which first approves it, to the consideration of all the presbyteries, and approved by a majority of them; after which it still remains to be considered by the next General Assembly, which then may or may not pass it into a law. The B. A. is regarded as of the greatest importance, both in the Established Church of Scotland, and in

BARRIER REEF—BARRINGTONIACEÆ.

the Free Church. Analogous regulations have been adopted by other Presbyterian churches.

BAR'RIER REEF: an immense coral-reef extending along the n.e. coast of Australia for nearly 1,300 m., at a distance from the shore of from 10 to upward of 100 m. The reef is, in general, precipitous, and in many places rises out of great depths, lines of 280 fathoms having failed to reach the bottom on the outer side. Ignorance of its extent led to many shipwrecks; but it has now been surveyed, and laid down on charts. In the course of its length there are several breaks or passages in it, only one being safe for ships. In the voyage from Sydney to Torres Strait, the inner route is usually taken. It is narrow, but safe.—The reefs called *barrier reefs* are one of the three characteristic kinds of coral formations, being distinguished both from *fringing* reefs and from *atolls*. See POLYNESIA: CORAL ISLANDS.

BAR'RING OUT: a practice formerly very common in British schools, now almost, if not altogether, abandoned. It consisted in the scholars taking possession of the school, and fastening the doors against the master, at whose helplessness they scoffed from the windows. The usual time for B. O. was immediately before the periodical vacation. It seems to have been an understood rule in B. O., that if the scholars could sustain a siege against the master for three days, they were entitled to dictate terms to him regarding the number of holidays, hours of recreation, etc., for the ensuing year. If, on the other hand, the master succeeded in forcing an entry before the expiry of that period, the insurgents were entirely at his mercy. The masters, in most cases, appear to have acquiesced good-humoredly in the custom; but some chafed at it, and exerted their strength and their ingenuity to storm or surprise the garrison. Addison is said to have been the chief actor in a B. O. of the master of Lichfield. The scholars of Witton School, Cheshire, were directed by the statutes drawn up by the founder, Sir John Deane, to observe the practice of B. O.: 'To the end that the schollars have not any evil opinion of the schoolmaster, nor the schoolmaster should not mistake the schollars for requiring of customs and orders, I will that upon Thursdays and Saturdays in the afternoons, and upon holydays, they refresh themselves—and a week before Christmas and Easter, according to the old custom, they bar and keep forth the school the schoolmaster, in such sort as other schollars do in great schools.' This school was founded 1558. See Brand's *Popular Antiquities*, Chambers's *Domestic Annals*, and Carlisle's *Endowed Grammar Schools*.

BARRINGTONIACEÆ, *băr-rîng-tō-nă-ă'sē-ē*: natural order of exogenous trees and shrubs, natives of tropical countries, and generally very beautiful both in foliage and flowers. Few plants, indeed, exceed some of them in beauty. The stamens are very numerous, and form a very conspicuous part of the flower. The fruit is fleshy, with bony seeds lodged in pulp. That of some species is eaten, as *Careya arh̄nea*, an Indian tree, the stringy bark of which

is used in the countries along the foot of the Himalayas as a slow match for matchlock guns. Humboldt and Bonpland mention that children become quite yellow after eating the fruit of an American species, *Gustavia speciosa*, of which, however, they are very fond; but that this color disappears in a day or two. The MOORDILLA (*Barringtonia speciosa*) is described by Sir J. E. Tennent as a tree which much attracts the attention of travellers in Ceylon. It has dark, glossy leaves, and delicate crimson-tipped white flowers. 'The stamens, of which there are nearly 100 to each flower, when they fall to the ground, might almost be mistaken for painters' brushes.' Some botanists include this order in *Myrtaceæ* (q.v.).

BAR'RISTER (or *Bar'raster*, as sometimes spelt in old books): the distinctive name by which an advocate or pleader at the English and Irish bars is known. Barristers are admitted to their office under the rules and regulations of the INNS OF COURT (q.v.), and they are entitled to exclusive audience in all the superior courts of law and equity, and generally in all courts civil and criminal, presided over by a superior judge. In the whole of the county courts, attorneys are allowed to practice without the assistance of counsel; also at petty sessions, though at the quarter sessions where four counsel attend, the justices always give them exclusive audience. In Scotland, the same body are styled ADVOCATES (q.v.) See ATTORNEY: ADVOCATES, FACULTY OF.

Barristers were first styled *Apprentices*, who answered to the bachelors of the universities, as the state and degree of a serjeant did to that of a doctor. These apprentices or barristers seem to have been at first appointed by an ordinance of Edward I. in parliament, in the 20th year of his reign (Stephen's *Commentaries*, vol. i. p. 17, and authorities there referred to). Of barristers, there are various ranks and degrees, and among each other they take precedence accordingly; the general name, 'counsel,' being, in the practice of the court, common to them all. But they may be divided into two groups—barristers and queen's counsel. (The ancient order of *serjeants-at-law* (q.v.), has now ceased to exist.) *Barristers* simply, or utter barristers, occupy the position of junior counsel, wearing a plain stuff-gown and a short wig; *queen's counsel* (q.v.) or her majesty's counsel learned in the law, as they are more formally called, are selected either from the outer or junior bar, or from the serjeants. They may be described as the ordinary leaders of the bar, and are distinguished by a silk gown, and on state-occasions, and always in the house of lords, they wear a full-bottomed wig. Also, the crown sometimes grants letters-patent of precedence to such barristers as may be selected for such honor, whereby they are entitled to such rank and pre-audience as are assigned to them in their respective patents. See PRECEDENCE.

In England with the *brief* (q.v.), or other instructions, by means of which their professional services are retained, B. receive a *fee*, or such fee is endorsed on the brief or instructions, and afterwards paid. In Scotland, and largely

in Ireland, *pre-payment* of the fee is the rigid etiquette. The amount of this fee in England, depends, of course, on the nature of the business to be done, the time to be occupied, and the labor to be bestowed; and it is usually, especially in the case of leading counsel, a liberal sum. The barrister's fee, however, is regarded as a mere honorary reward—*quiddam honorarium*, as it is called in law-books. There is, therefore, no means of enforcing its payment.

As to punishment of misdemeanors in practice of barristers, see BENCHERS: DISBAR.

For other lines of barristers' practice besides advocacy, see OPINION OF COUNSEL: PLEADING: CONVEYANCING and CONVEYANCER.

It is from the body of B. that all the judges in England, superior and inferior, are appointed; and B. are also always chosen for the office of paid magistrate. The only exception to the exclusive appointment of B. to judicial offices, is the case of justices at petty and quarter sessions, chiefly a criminal jurisdiction. See QUARTER SESSIONS.

In the United States the term B. is not in use: the term most nearly corresponding is Attorney and Counselor-at-Law (see ATTORNEYS: ETC.).

BAR'RISTER, REVISING: see REVISING BARRISTER.

BARROS, *bár'ôs*, JOÃO DE: most distinguished of Portuguese historians: 1496–1570, Oct. 20; b. Viseu, of an ancient and noble family: became a page to King Emmanuel and afterwards companion to the crown prince. He wrote a historical romance in his 24th year, whose style had a peculiar beauty. Hereupon the king assigned him the task of writing the history of the Portuguese in India, which he undertook, but of which only the first three decades proceeded from his pen, under the title of *Asia Portuguesa* (Lisb. 1552–63); the continuation, extending to twelve decades, was the work of Diego de Couto. (A new edition of the whole appeared at Lisbon, 8 vols., 1778–88). B. was for some time governor of the Portuguese settlements in Guinea, afterwards treasurer and general agent for the Indies. In 1539, the king bestowed on him the province of Maranhao in Brazil, that he might found a colony there; an enterprise which he forsook after much loss.

BARROSA, *bar-ro'sá*: village of Spain 16 m. s.s.e of Cadiz; celebrated in history as the place where General Graham (afterwards Lord Lynedoch), with a handful of English troops, 1811, March, succeeded in gaining against the French, after his Spanish allies had retreated, one of the most glorious victories of the Peninsular campaign. More than 2,000 French were killed and wounded (some authorities give nearly 3,000 killed alone), 300 prisoners taken, 6 pieces of cannon and an eagle—the first captured in the war.

BARROT, *bá-rot*: CAMILLE HYACINTHE ODILON: 1791, July 19—1873, Aug. 6; b. Villefort, Lozère: French jurist and statesman, son of a member of the Convention, and afterwards of the Council of Five Hundred. In 1814, he became an advocate of the court of cassation, Paris, and

BARROW.

soon gained repute as an eloquent pleader. Entering the chamber of deputies young, he came to be regarded as one of the leaders of the liberal opposition. At the Revolution of 1830, he was one of the three commissioners appointed by the provisional government to accompany Charles X. from Rambouillet to Cherbourg, on his embarkation for England. Under the new government, he was appointed prefect of the dept. of the Seine; and in Lafayette's ministry, a member of the council of state. After Casimir Périer became minister, he lost his place in the council of state, and began his opposition career in the chamber of deputies against the reactionary policy of the government, and became the rallying-point for all who favored the principles of the July revolution. He essentially contributed to the removal of the Doctrinaires (q.v.) from office, 1836, Feb., and energetically opposed the ministry of Molé, which was overthrown, 1839, Jan. When, in March 1840, Thiers was placed at the head of the government, B. declared himself in favor of the ministerial policy on the oriental question. On the return of Guizot to office, Oct. following, his opposition to the government was renewed. B. was conspicuous in the Reform movement of 1847. On the outbreak of the struggle of 1848, Feb. 23, when Louis Philippe called upon Thiers to form a new ministry, B. was appointed president. His advice to the king to withdraw his troops proved fatal to the throne of July. In the last sitting of the chamber of deputies, B. supported the claim of the Count de Paris to the throne, and the regency of the Duchess of Orleans. Under the presidency of Louis Napoleon he was for some time a minister and conducted the government with success till 1851, when he retired from active political life. He, however, took part in the conference in favor of Poland, Paris, 1864. In 1872, he was made a councilor of state and vice-pres. of the council. He d. at Bougival, near Paris. See his *Mémoires Posthumes* (4 vols., Par. 1875-76).

BARROW, n. *bār'rō* [Sp. *barraco*, a boar: AS. *bearg*: Bohem. *braw*]: in *OE.*: a castrated boar; a hog.

BARROW, n. *bār'rō* [AS. *berewe*—from *beran*, to carry; It. *bara*, a litter: Ger. *bähre*, a barrow]: a hand-carriage.

BARROW, n. *bār'rō* [AS. *beorg* or *beorh*, a hill or mound: Icel. *bjarj*, a large stone: Gael. *barpa*, a conical heap of stones]: a hillock or mound anciently raised over the graves of warriors or nobles, especially those killed in battle. Barrows are very numerous in Great Britain, and many of them are supposed to belong to a period long prior to the Roman invasion. The counties of Wilts and Dorset are especially rich in these remains, which in the former have been thoroughly explored, described, and classified by Sir R. C. Hoare in his *Ancient Wiltshire* (2 vols. fol. 1810-21). In the sepulchral B., the human remains are buried either in a rude stone 'cist' or chest, in which the body was doubled up, or are laid at full length in the earth, accompanied by arms and other utensils. Where the body was burned, the remains were laid on the floor of the barrow, in a cist ex-

BARROW.

cavated on the spot, or at a later epoch, in a clay urn. Sir R. Hoare considers the Wiltshire B. as indicating three stages in the progress of society. The first class contains spear and arrow heads of flint and bone; the second of brass; and the third contains arms and instruments of iron. One of the largest barrows in Europe is Silbury Hill, near Marlborough, Wiltshire, which covers 5 acres, 34 perches of land, and has a slope of 316 ft., with a perpendicular height of 170. According to Sir R. Hoare, barrow-burial was practiced down to the 8th c., from a period of unknown antiquity. The practice of erecting sepulchral mounds prevailed among all the principal nations of antiquity, both in Europe and in Asia, and they are found in great numbers in Central America. Many barrows are only partly artificial; natural mounds having been shaped by man into the form which it was wished they should take. See William Greenwell's *British Barrows*. (Oxf. 1877).

BAR'ROW: river in the s.e. of Ireland, in importance next to the Shannon. It rises in the n. of Queen's co., on the n.e. slope of the Slieve Bloom mountains; flows first e. past Portarlinton to the border of Kildare co., and then s. between Queen's, Kilkenny, and Waterford cos. on the w. and Kildare, Carlow and Wexford cos. on the e., passing the towns of Athy, Carlow and New Ross. It has a course of 100 m. through a carboniferous, granitic, and silurian basin. Two m. above New Ross it receives the Nore (q.v.), and eight m. e. of Waterford, it is joined by the Suir (q.v). These three rivers (called the Three Sisters, from their rising in the same mountain-ridge, and joining near the sea, after flowing through different counties) form, near the sea, the large and secure estuary of Waterford harbor, 9 m. long. The B. is navigable for vessels of 300 tons to New Ross, 25 m. up, and for barges to Athy, 65 m. up, whence the Grand canal communicates with Dublin. The B., below Portarlinton, falls 227 ft.

BARROW, bār'ō, ISAAC: 1630-77: eminent English divine and mathematician. He received his early education at the Charter-house, where he was distinguished chiefly by his negligence and pugnacity. At Felstead school, Essex, to which he went next, he greatly improved; and in 1643, he was entered at Peter-house, Cambridge, under his uncle Isaac, then a fellow of that college, and finally Bp. of St. Asaph. On the ejection of his uncle, 1645, he removed to Trinity College, where he became B.A., 1648, fellow, 1649, and M.A., 1652. Finding that to be a good biblical scholar he must know chronology, that chronology implies astronomy, and astronomy mathematics, he applied himself to the latter science with distinguished success. To the classics he had already devoted much study, and on the vacancy of the Greek chair, he was recommended for the office; but a suspicion of Arminianism interfered with his success. After this disappointment, he went abroad (1655), and travelled during four years through France and Italy, to Smyrna and Constantinople, back to Venice, and home through Germany and Holland. On the voyage from Leg-

horn to Smyrna, his determined personal courage seems to have been instrumental in scaring away an Algerine pirate, after a brisk exchange of shots. Soon after his return he took orders in the church, and in the following year he was appointed prof. of Greek. The neglect with which he was treated after the Restoration is celebrated in his couplet addressed to the king—

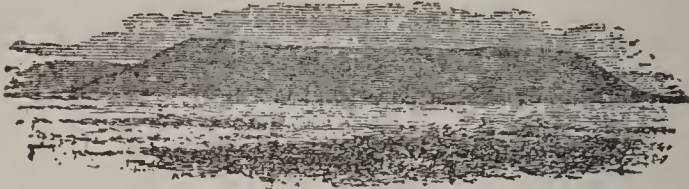
Te magis optavit rediturum, Carole, nemo,
Et nemo sensit te rediisse minus.

In 1662, he was appointed to the Gresham professorship of geometry, which, on his being appointed to the Lucasian professorship, 1663, he thought it his duty to resign. The latter also he resigned 1669, in favor of his pupil Isaac Newton. On quitting his professorship he obtained from his uncle a small living in Wales, and from Dr. Seth Ward, Bp. of Salisbury, a prebend in that cathedral. He devoted the revenues of both to charitable purposes, and resigned them 1672, on being appointed by the king Master of Trinity College. To him, while in this office, is due the foundation of that valuable library, which is one of the chief ornaments of the university. In 1675, he was nominated vice-chancellor of the university. B. was distinguished for nobility and force of character. Of his original mathematical works, the principal are his *Lectiones Geometricæ* and *Lectiones Opticæ*, of which it has been said that they are ‘a mine of curious interesting propositions, to which geometry is always applied with particular elegance.’ As a theologian, his fame rests chiefly with his sermons, which are very remarkable as specimens of clear, exhaustive, and vigorous discussion. His sermons were generally of excessive length. One, on charity, lasted three hours and a half; and at Westminster Abbey, he once detained the audience so long that they procured the playing of the organ ‘till they had blowed him down.’ B.’s English works, consisting of sermons, expositions, etc., have been edited by Dr. Tillotson, Dean of Canterbury, and prefaced with a life by Mr. Hill. His works, besides those already mentioned, are very numerous, and include *Euclidis Elementa*, *Euclidis Data*, *Mathematicæ Lektionen*, *Opuscula*, containing Latin sermons, poems, speeches, etc. *Lektionen Mathematicæ* and *L. Geometricæ* have been translated by Kirby and Stone. *Euclidis Elementa* has also been translated.

BARROW, Sir JOHN, Baronet: 1764, June 19—1848, Nov. 23; b. Dragleybeck, in Lancashire: was early instructed in mathematics; and after having published a small volume on land-surveying, filled a situation in a Liverpool iron foundry, visited Greenland with a whaler, and after his return taught mathematics in an academy at Greenwich. He received an appointment as private sec. and keeper of accounts to Lord Macartney, who went as ambassador to China, where B. learned the Chinese language. When Lord Macartney became gov. of Cape Colony, B. made extensive excursions in the interior, which he described



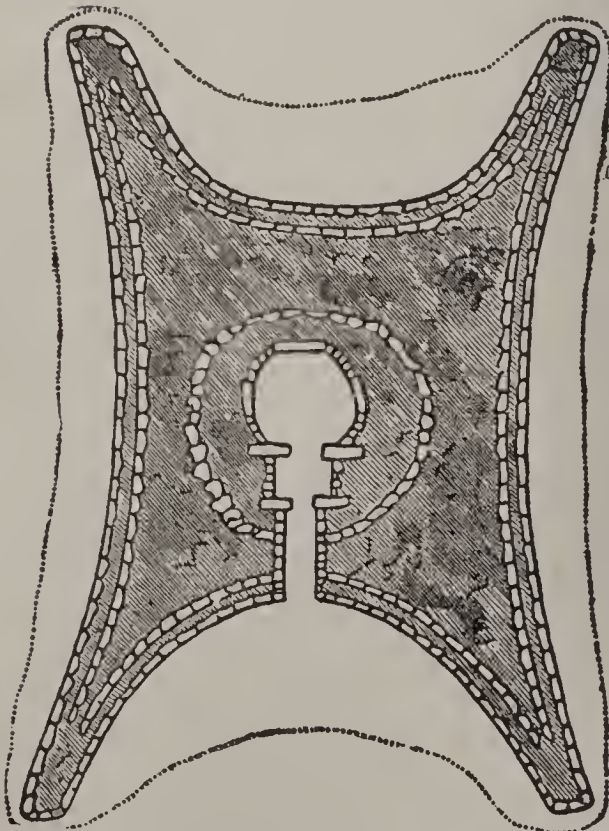
Bowl Barrow



Long Barrow.



Twin Barrow.



Plan of Chambered Barrow or Cairn, at Garrywhin, Caithness.

BARROW—BARROW-IN-FURNESS.

in *Travels in the Interior of Southern Africa* (2 vols., Lond. 1801–03.) Having returned to London, in the year 1804, he was appointed by Lord Melville sec. to the admiralty, which situation he held for 41 years except for a short time in 1806. Beside *Travels in China* (Lond. 1804), B. published *A Voyage to Cochinchina in the years 1792 and 1793* (Lond. 1806), *The Life of Macartney* (2 vols. Lond. 1807), *A Chronological History of Voyages into the Arctic Regions* (Lond. 1818), also a series of *Lives of English Naval Worthies*. Under Peel's ministry, 1835, he was raised to the baronetcy. In the year 1845 he retired from public service, but afterwards published *An Autobiographical Memoir* (Lond. 1847), and *Sketches of the Royal Society*. He died at London. He rendered many services to geographical science by suggesting and promoting scientific expeditions; with him also originated the idea of the Geographical Soc., founded 1830, of which he was vice-pres. till his death.

BARROW, POINT: a cape in the Arctic Ocean; named in honor of Sir John Barrow, sec. to the admiralty, prime mover in the more recent era of northern discovery: lat. $71^{\circ} 23'$ n., long. $156^{\circ} 31'$ w., generally considered the most northerly spot on the American mainland (see, however, BELLOT STRAIT), and hence sometimes called *Cape North* an ambiguous designation, tending to confound this headland at once with Cape North in Asia, and with North Cape in Europe.

BARROW-IN-FURNESS, *băr'rō-în-fēr'nēs*: seaport and rapidly increasing town of North Lancashire, England; on the s.w. coast of the peninsula of Furness, opposite a small Island called Barrow Island, traditionally reported to have been an ancient burial place of Norse rovers. By rail it is 268 m. n.n.w. of London; 36 m. w.n.w. from Lancaster. It is connected by railway with Dalton (q.v.) from which it is not quite four m. distant, and so with the whole railway system of England. By the Distribution of Seats Act (1885), B. was made a parliamentary borough, returning one member to parliament. Its rapid growth is owing to the great quantity of iron ore, of the best quality—red hematite—in the neighborhood, and to the establishment of mines and smelting works. A small quantity of iron ore from this neighborhood, was, for many years, exported to be smelted elsewhere; but about 1859, smelting works were established at B. which soon gave employment to a great number of men. In 1865, these works produced about 160,000 tons of iron. The Barrow Hematite Steel Company has now 16 blast-furnaces in constant operation, and 18 converters for making Bessemer steel. The company partly raise their own ore, employ at their works and mines nearly 5,000 men, and use about 500,000 tons of ore annually. The amount of pig-iron made yearly is about 580,000 tons, about 220,000 tons being taken to the steel works, and there converted by the Bessemer process into steel. Great quantities of limestone and coke are used in the iron furnaces and steel works. The red hematite of B. yields an average of 57 per cent. of iron. The B. steel

BARROWS—BARRULET.

works are the largest Bessemer steel works in Britain, producing about 140,000 tons of steel annually. In the B. works, the iron is conveyed in a molten state from the blast furnaces to the 'converters,' where it is made into steel. Some of the steam-hammers employed have heads of six tons weight. Copper as well as iron ore is obtained in considerable quantity hear B., and is exported to the amount of about 3,000 tons annually. About 20,000 tons of slate also are annually quarried in the neighborhood, and sent to other parts of Great Britain.

The town of B. is built on a regular plan, mostly in rectangles. St. George's Church is a handsome Gothic building, erected chiefly at the expense of the Dukes of Devonshire and Buccleuch, the principal land-owners of the town and neighborhood. There are other places of worship belonging to the Church of England and other denominations. Among public buildings are the North Lonsdale Hospital, Town Hall, Workmen's Club and Institute, a large covered market, swimming baths, schools, banks, etc.

The ownership of land in the town and neighborhood is chiefly vested in the Dukes of Buccleuch and Devonshire; and two docks, which were opened 1867 by Mr. Gladstone, are named, respectively, after these noblemen. The Ramsden dock (78 acres) and the Cavendish dock (200 acres) were opened 1877, and are 24 ft. in depth. Barrow Island is the great ship-building centre, where vessels in size between 20 and 8,300 tons are constructed, and (in full work) about 5,000 hands are employed. The flax and jute works, built by local capital, employ as many as 1,800 women and girls. The imports of B. are timber, from Sweden and Canada, coal from Wales, canned goods from New York, jute, and general products; exports, ore, steel rails, and pig-iron. Passenger steamers run daily to Belfast, and there is regular service to Glasgow and the Isle of Man. The interesting ruins of Furness Abbey, founded by Stephen 1127, are near.

BARROWS, JOHN HENRY, D.D.: 1847, July 11—1902, June 3; b. Medina, Mich. He studied at Olivet College, Mich., and in Yale, Union, and Andover theol. seminaries; became pastor of the First Presb. Chh., Chicago (1881); and chairman of the general committee on the great religious congresses at the World's Columbian Exposition (1893). Resigning his pastorate (1896), he went to India as lecturer for the Univ. of Chicago, Haskell endowment. He became president of Oberlin College in 1898.

BARROW STRAIT: the earliest of Parry's discoveries; leading to the w. out of Lancaster Sound, which Parry's immediate predecessor, Captain, afterwards Sir John Ross, had pronounced landlocked in that direction. Beside its main course, B. throws off *Prince Regent's Inlet* to the s. and *Wellington Channel* to the n. The passage averages about 40 m. in breadth, extending, nearly along the parallel of 74° n., from 84° to 90° w. It was named in honor of Sir John Barrow.

BARRULET, n. *băr'rul-ët* [dimin. of Eng. *bar*]: in *her.*,

BARRY.

one-fourth of a bar—a twentieth part of the field. It is seldom or never borne singly: sometimes called also a *bracelot*. When disposed in couples, barrulets are *bars-gemels*. **BARS GEMELS**, pl. *bárz'jěm'łz* [Eng. *bar*; -L. *gemellus*, twin]: two horizontal bars on a field, at a short distance from each other.

BARRY, *băr'rě*: small island, about a mile long, in the Bristol Channel, off the s. coast of Glamorganshire, 10 m. s.w. of Cardiff. It has the ruins of an ancient castle and of two chapels. On Nell's Point, in the s. part, is a fine well, to which great numbers of women resort on Holy Thursday, and having washed their eyes in the spring, each drops a pin into it.

BARRY, *băr'rě*, in Heraldry: a shield divided transversely into four, six, or more equal parts, and consisting of two or more tinctures interchangeably disposed.



Barry.



Barry-bendy.



Barry-pily.

Barry-bendy is where the shield is divided into four, six, or more equal parts, by diagonal lines, the tincture of which it consists being varied interchangeably.

Barry-pily is where the shield is divided by diagonal lines, the colors being interchanged as in the example.

BARRY, *băr'rě*, Sir CHARLES, R.A.: 1795, May—1860, May 12; b. Westminster, Eng.; son of Walter; architect of the two Houses of Parliament. Educated at private schools in Leicestershire and Bedfordshire, he was indentured to Messrs. Middleton and Bailey, architects, Lambeth. In 1817, at the age of 22, he went to Italy; afterwards visiting Egypt, Greece, and Rome. On his return to England, after an absence of three and a half years, he became the successful competitor for the design of a church at Brighton. He was also the architect of the Manchester Athenæum, a building in the Grecian style; and of the Grammar School of King Edward VI. at Birmingham; the latter esteemed the most beautiful of his works. In London, he designed the Traveller's Club, and the Reform Club, both in Pall Mall, and the College of Surgeons, Lincoln's Inn Fields. After the burning of the old Houses of Parliament, 1834, on a public competition, B's design for the new building was adjudged the best. The work was commenced 1840; and, 1852, Feb. 3, the queen opened the Victoria Tower and Royal Gallery in state, and knighted the architect. Chosen a Royal Academician, 1842, Sir Charles was also a Fellow of the Royal Soc., of the Soc. of Arts, etc. See the Life by his son, Bishop B. (Lond. 1867).

BAR'RY, COMTESSE DU: see DU BARRY.

BAR'RY, JAMES: 1741, Oct. 11—1806, Feb. 22; b. Cork, Ireland: historical painter, distinguished more by the force

BARRY,

of his conception than the excellence of his manipulation, or the beauty of his color. His *chef-d'œuvre* is the *Victors at Olympia*. B. was a *protégé* of Edmund Burke. He was irritable and quarrelsome; was expelled from the Royal Acad., and died in poverty.

BARRY, JOHN: naval officer: 1745–1803, Sep. 13; b. Tacumshane, county Wexford, Ireland. He emigrated to America at the age of 15, and was in the employ of merchants in Philadelphia; then went to sea, and rose to be master of a vessel. He was given command of the *Lexington* 1776, and captured the tender *Edward*, the first British war-ship taken in the revolution. After commanding the frigate *Effingham* for a time, he was transferred to land duty, and was in command of a company handling artillery at the battle of Trenton, and served as aid to Gen. Cadwalader. He commanded the *Raleigh* 1778, and the *Alliance* 1781, and conveyed Col. Laurens, and afterward Lafayette and Noailles, to France. He then took the *Alliance* to the W. Indies, where, 1782, he was engaged with an English vessel, but on the appearance of a superior force was compelled to save his ship by escape. On the reorganization of the navy he was appointed senior officer—the first commodore in the new navy. He died in Philadelphia.

BARRY, JOHN, D.D.: Rom. Cath. bishop: 1799–1859, Nov. 21; b. county Wexford, Ireland. He studied theology in Ireland, and emigrated to America, completing his education at the Charleston (S. C.) Theol. Seminary. He was ordained 1825, and was made pastor in Augusta, Ga. During the cholera epidemic, 1832, he used his private residence as a hospital, and as an orphan asylum for children of those who died, after the epidemic had ceased. B. was appointed vicar 1839; vicar-gen. of the diocese of Charleston and superior of the theological seminary 1844; vicar-gen. of the diocese of Savannah 1853, and bishop 1857. He visited Europe for his health 1859, and died in Paris.

BARRY, MARTIN, M.D.: 1802–1855, Apr.; b. Fratton, Hampshire, England: physiologist. He wrote much on animal development and embryology; bringing to light (1840–43) the fact that spermatozoa penetrate *within* the ovum; also the segmentation of the yolk in mammals. B. was amiable and greatly benevolent; and being rich, gave his professional services largely to the poor.

BARRY, PATRICK: nursery gardener and editor; 1816, May—1890, June 23; b. near Belfast, Ireland. He received a good education, and taught school in Ireland until 1836, when he emigrated to America, and accepted employment in a nursery at Flushing, L. I. Four years later he was in partnership in the same business with George Ellwanger, in Rochester, N. Y., the firm becoming widely known and wealthy. B. was editor of the *Genesee Farmer* 1844–52, and of the *Horticulturist* 1852–54. He was pres. of the Western N. Y. Horticultural, and other similar societies, and published several works.

BARRY, WILLIAM FARQUHAR: military officer: 1818, Aug. 8.—1879, July 18; b. New York. He graduated at West Point 1838, and chose the artillery arm of the ser-

BARRY CORNWALL—BAR-SUR-SEINE.

vice. He fought in Mexico 1846–48, was stationed at Fort McHenry 1849–51, and was appointed capt. 2d artil. 1852, July 1. During the next two years he was in the Seminole war, was at Fort Leavenworth, 1857–58; and 1858 on the board appointed to revise the system of light artillery practice. In 1861 he was appointed maj. of the 5th artil., and chief of artil. in the Army of the Potomac; brig.gen. of vols. 1861, Aug. 20. He was in the Peninsular campaign; in 1863 was chief of artil. on Gen. Sherman's staff, and served through the Georgia campaign 1864. He was made brev. maj.gen. of vols. and brev.col. U.S.A. 1864, Sep. 1; brev. brig.gen. and brev.maj.gen. U.S.A. on the same day 1865, Mar. 13, for gallant conduct; col. 2d artil. 1865, Dec. 11; and was mustered out of the volunteer service 1866, Jan. 15. He served on the frontier and in the forts until his death.

BAR'RY CORN'WALL: see PROCTER, BRYAN WALTER.

BAR-SUR-AUBE, *bâr-sür-ôb'*: town of France, dept. of Aube, on the right bank of the river Aube. It is an ill-built ancient town; numerous old coins and urns attesting that the Romans must have had a station here. B. was destroyed by the Huns in the 5th c., but soon rebuilt, when it gained commercial importance. A chapel built on the bridge which here crosses the Aube, now marks the spot from which the Bastard of Bourbon was hurled into the river by command of Charles VII., 1440. B. is noteworthy also as the place where the council of the allied sovereigns, which decided the plan of the campaign ending in the first fall of the Empire, was held 1814, Feb. 25; and where, two days later, the French were defeated by the allies under Schwarzenberg. Pop. (1881) 4,547; (1891) 4,342.

BAR-SUR-SEINE, *bâr-sür-sân'*: ancient town of France, dept. of Aube, pleasantly situated on the left bank of the Seine. Here the allies, under the Prince of Würtemberg, defeated the French under Macdonald 1814.—Pop. (1891) 3,237.

BARTAN, *bâr-tân'*: town of Anatolia, near the mouth of the Chati-su (ancient *Parthenius*) on the Black Sea. It has a brisk trade with Constantinople. Pop. 10,000.

BARTAS, *bâr-tâ'*, GUILLAUME DE SALLUSTE DU: abt. 1544-90; b. Montfort, Armagnac: soldier, diplomatist, and man of letters. His reputation was great during his lifetime, alike in 'the court, the camp, the grove.' His chief poem, *The Divine Week and Works*, an account of the creation, with the history of the Jews as far as the book of Chronicles, is said to have had considerable influence on Milton's *Paradise Lost*. Thirty editions of the work passed through the press in six years. Dryden, when a boy, thought his verse incomparably superior to Spenser's; an opinion, however, which he was afterwards ashamed of. B.'s name is now forgotten, or remembered only in connection with bad taste. It is not to be denied, however, that his fancy, though generally grotesque and lawless, occasionally strikes out most picturesque imagery and epithets. His use of compound words led to their introduction into England, through his translator Sylvester (q.v.), and to the consequent enrichment of our poetry. He died of wounds received at the battle of Ivry.

BARTER, v. *bâr'tèr* [OF. *bareter*, to deceive: Sp. *baratar*, to truck or exchange: It. *barattare*, to truck or barter (see BARGAIN)]: to traffic by exchanging one kind of goods for another; to exchange; to trade: N. *originally*, noisy contention in making a bargain; traffic by exchanging. BAR'TERING, imp. BARTERED, pp. *bâr'tèrd*. BAR'TERER, n. one who. —SYN of 'barter, v.': to change; exchange; truck; commute; substitute; interchange.

BAR'TER, in Commerce and Political Economy: the exchange of one commodity for another, as differing from the sale of commodities for money. It is usual to suppose that in the history of any community B. preceded the other methods of commerce, as people would find the convenience of exchanging one article for another before they were acquainted with money or credit. In fact, ships visiting savage countries are generally to some extent freighted with weapons, tools, or ornaments, to be used in B., if it be desirable to carry on a trade with the inhabitants. Under old artificial systems of political economy, there was much useless discussion about the question, whether a B.-trade or a money-payment trade was more advantageous to the community at large, and which of them should be encouraged while the other is depressed. On one side, it was maintained that nothing but an export sale for cash was really profitable; on the other, that it was more advantageous to get goods in return, because thus there was a double transaction and double profit. See BALANCE OF TRADE. But the simple doctrine of the present day, that whatever the merchant finds most profitable to himself will also be most profitable to the community, saves the necessity of making these distinctions. B. is, in reality, one of the commonest forms of trade, taken at large in the present day. The exporter sends goods to his agent, who, without probably ever

BARTFA—BARTH.

touching hard cash in the course of the transaction, lays in a cargo of import goods with the value, and these are literally brought home in exchange for those sent out.

BARTER, in Law, or **EXCHANGE**, as it is now more generally called in law-books, is a contract for transferring property, the consideration being some other commodity; or it may be described as a contract for the exchange of two subjects or commodities. It thus differs from *sale*, which is a contract for the transference of property in consideration of a price in *money*. See **EXCHANGE: SALE OF GOODS**.

BARTFA, *bört'fő*, or **BARTFELD**, *bárt'fält*: small but very old free town of North Hungary, province of Saros, on the Topla, 155 m. n.e. of Pesth. Its position on the borders of Galicia has frequently made it a place of refuge for Poles and Russians. Its hot baths are much frequented, and a trade in wine, brandy, linen, and earthenware is carried on. Pop. (1885) 5,714.

BARTH, *bárt*, **HEINRICH**, PH.D., D.C.L.: 1821, Feb. 16 -- 1865, Nov. 25; b. Hamburg, Ger.: enterprising modern African traveller. He studied at the University of Berlin. In his youth his favorite studies were the Roman and Greek classics and antiquities, with the geographical sciences. After visiting Italy and Sicily, he embarked, 1845, at Marseille, and from Gibraltar passed over to Tangier, in Africa. Proceeding along the Algerian coast he made excursions into the interior, to Tunis, Tripoli, and Bengazi. On his journey thence to Cairo, he was attacked by a band of Arab robbers, whom he bravely resisted, but was severely wounded, and lost all his effects and papers. He afterwards extended his researches into Egypt, Sinai, Palestine, Asia Minor, and Greece. These travels occupied him nearly three years, and in 1849 he published, at Berlin, an account of a portion of them in a work entitled *Wanderungen durch die Küstenländer des Mittelmeeres*. Dec. 8 of that year he again sailed from Marseille, under appointment by the British government as scientific companion to Mr. James Richardson, a political and commercial commissioner to central Africa. Starting from Tripoli 1850, Feb. 4, they crossed the Great Desert amid much difficulty and danger. B. soon separated from his friends, and pursued his researches for the most part by himself. B.'s associates succumbed to the climate, and B. was alone. He did not, however, return disheartened, but continued his explorations, which, when he returned to Tripoli, 1855, Sept., had extended over 24 degrees of latitude and 20 of longitude, from Tripoli, in the n. to Andamawa in the s., and from Bagirmi in the e. to Timbuktú in the w., upwards of 12,000 m. The result of his researches was given to the world in his *Travels and Discoveries in Central Africa*, 5 vols. (Lond. 1857-58). Afterwards, he made several journeys in Greece, Turkey, Asia Minor, and other countries on the Mediterranean. Shortly after returning from one of these, he died at Berlin. In 1858 appeared his *Reise von Trapezun, durch die nördl. Hälfte Kleinasiens nach Skutari*; in 1862 his *Sammlung und Bearbeitung central-afrik. Vocabularien*.

BARTH, JEAN, or BART, *bār*: 1651-1702; b. Dunkirk (according to some accounts, in the Netherlands); son of a fisherman: French naval hero. At an early age he entered the Dutch navy, but on the commencement of the war with Holland he passed over to the French service. As persons not of noble birth could not then obtain the rank of officer in the navy, he became captain of a privateer. In this capacity he displayed astonishing bravery, so that Louis XIV. despatched him on a special mission to the Mediterranean. His exploits at last induced the king to appoint him lieutenant of a man-of-war. In an action against a superior English force he was taken prisoner, and carried to Plymouth, from which he made his escape in an open fishing-boat to France, where the king raised him to the rank of captain. In 1696, Louis XIV. received him with distinction at Versailles, but at the same time spoke continually of the mischance which had befallen him the year before. Stung by this, B. hastened to Dunkirk, and in spite of the blockade of the harbor by the English, undertook a cruise, in which he was remarkably successful. Louis XIV., in a personal audience 1697, appointed him to the command of a squadron, upon which B. exclaimed: 'Sire, you have done well in this.' The courtiers laughed, as at a piece of gross rudeness; but the king took the answer in good part. The peace of Ryswick terminated his active career. He died at Dunkirk. His rough frankness and coarse wit, in which he spared neither high nor low, made him popular, no less than his boldness and readiness for battle. When the Prince de Conti was nominated king of Poland, B. was required, by command of Louis XIV., to convey him to Elsinore, and the ship being attacked by the English on the voyage, was near being taken. After the action, the prince expressed to him his great delight that they had escaped from the enemy. 'We had no need,' was the reply, 'to be afraid of being made prisoners; I had despatched my son with a match to the powder-magazine, to blow up the ship on the first wink!'

BARTHÉLEMY, *bār-tāl-me'*, AUGUSTE-MARSEILLE: 1796-1867, Aug.; b. Marseille, France; poet and politician. Removing to Paris, in 1825, with Méry, he issued a collection of satirical epistles, *Les Sidiennes*; and the year after, a mock-heroic poem, *La Villélide ou la Prise du Château de Rivoli*. This vigorous political squib had great success; in the course of the year, it ran through fifteen editions, and is said to have put into the pockets of the young authors abt. 24,000 francs. Continuing to work together in opposition to the government of Charles X., and in the interest of Napoleonic ideas, they put forth upwards of 20 pieces of a like satirical cast before 1830. The revolution of July of that year found B. in prison for an offense done to the government in one of his later publications. His liberation was immediate; and with his friend Méry, he celebrated the victory of the people in a poem entitled *L'Insurrection*, characterized by Sainte-Beuve as one of the happiest productions of the writers. A pension of 1,200 francs, bestowed on him by Louis-Philippe, did not deter B. from at-

BARTHÉLEMY—BARTHÉLEMY SAINT-HILAIRE.

lacking his ministers also; and the pension was soon withdrawn. During all the changes which followed, B. was indefatigable as a versifier on the political events of the day: but, except for readers intimately versed in the detail of these, his poems have now no interest, though the force and brilliancy of his satire is admitted. He was a warm supporter of the second Napoleonic *régime*. He died at Marseille, of which city he was librarian.

BARTHÉLEMY, JEAN JACQUES: 1716, Jan. 20—1795, Apr. 30; b. Cassis, near Aubagne, Provence: historian and antiquary. He was educated under the Jesuits for the church, but soon abandoned all thought of becoming a priest, and devoted himself to the study of the Greek, Hebrew, Syriac, Arabic and Chaldee languages, though he retained the dress and title of an abbé. He acquired distinction first by the discovery of the Palmyran alphabet. As asst. supt. of the royal cabinet of medals, he augmented it by a great number of costly specimens. From 1758 to 1789, he quietly pursued his learned researches, which were interrupted by the Revolution. He was imprisoned 1793, Sep., on charge of being an aristocrat, but almost immediately released; and was soon offered the situation of national librarian, but his age and infirmities compelled him to decline it.

His most celebrated and popular work is the *Voyage du jeune Anacharsis en Grèce dans le Milieu du quatrième Siècle avant l'ère Chrétienne*, Paris, 1788, 4 vols. (Travels of the Young Anacharsis in Greece about the Middle of the Fourth Century B.C.). The work (see ANACHARSIS) is very pleasing, and shows extensive knowledge of the ancient world, especially of Greece and its colonies. Later criticism has, however, pointed out many deficiencies and anachronisms. It has been translated into almost every European language. Among B.'s other works may be mentioned a romance, entitled *Caryte et Polydore* (Paris, 1760); *Explication de la Mosaique de Palestrine* (Paris, 1760); *Réflexions sur l'Alphabet et la Langue de Palmyre* (Paris, 1754).

BARTHÉLEMY SAINT-HILAIRE, *săn-te-lâr'*, JULES: b. Paris, 1805, Aug. 19. He first held a subordinate office under the minister of finance; and was one of the editors of the *Globe*, a Paris paper, 1828–30. After the July revolution, he took part with the society *Aide-toi et le Ciel t'aidera* (q.v.), revised several of its democratic manifestoes, established the *Bon Sens*, and continued to attack the government of Louis Philippe in the *Constitutionnel*, the *Courrier-Français*, and the *National*. In 1833, he desisted from political strife, and betook himself to more quiet studies. In 1834, he was named *Repétiteur* for the French literature class in the *Ecole Polytechnique*; and 1838, prof. of Greek and Latin philosophy in the *Collège de France*. The revolution of February, however, brought him once more into the political arena. He was appointed sec. to the Provisional Government, but refused his support to the government of Cavaignac, and even appeared as his accuser, though he failed to establish his charges against the sup-

pressor of the June insurrection. B. was at first in favor of Louis Napoleon, but the *coup d'état*, Dec. 2, and the overthrow of the constitution, compelled him to become an oppositionist. He then retired for a time from public life, and resigned his chair, but in 1862 he was reappointed. In 1869 he was returned to the corps législatif by the first circumscription of Seine-et-Oise; and, in 1871, to the assembly for the dept. of Seine-et-Oise. In 1875 he was elected a life-senator by the assembly; and he was minister of foreign affairs 1880-1. He d. 1895, Nov. 22.

His principal writings are his translations of Aristotle's works—*Politique d'Aristote* (Paris, 1837); *De la Logique d'Aristote* (1838); *La Logique d'Aristote*, translated into French for the first time (1839-44, 4 vols.); *Psychologie d'Aristote, Traité de l'ame* (1846); *De l'Ecole d'Alexandrie* (1845); *Rapport sur la Comparaison de la Philosophie Morale et Politique de Platon et d'Aristote, avec les Doctrines des plus grands Philosophes Modernes* (1854); *Des Védas* (1854); *Du Bouddhisme* (1855); *Mahomet et le Coran* (1865); and *De la Métaphysique, sa nature et ses droits* (1879).

BARTHOLDI, FRÉDÉRIC AUGUSTE: sculptor: b. Colmar, Alsace, 1834, April 2. He removed to Paris while a boy, and first studied painting with Scheffer, but in a short time abandoned painting for sculpture, to which he has since applied himself. He made his first exhibit when 13 years old, and produced his *Francesca da Rimini* when 18. In 1856-58 he made an Oriental tour with Gérôme, and during the Franco German war served in the army with the painters Regnault and De Neuville. His works include portrait busts of Erckmann and Chatriau; monument to Martin Schongauer; *La Malédiction d'Alsace*; *Le Vigneron*; *Vercingetorix*; *Lafayette Arriving in America*; *The Young Vine-grower*; *Genis Funèbre*; *Peace*, and *Genius in the Grasp of Misery*, contributed to the U. S. Centennial Exhibition; *The Lion of Belfort*; *Gribeauval*; and *Liberty Enlightening the World* (see LIBERTY, STATUE OF). He made several trips to the United States; suggested Bedloe's Island as the site for the colossal statue; was present at its dedication; and has received the cross of the Legion of Honor. In 1890 he protested against the proposed use of Bedloe's Island as an emigration depot, and suggested that it should be adorned with statues of great Americans.

BARTHOLIN, *bâr'to-lin*: name of a Danish family distinguished for learning and authorship, the members of which have filled many important offices, especially in the Univ. of Copenhagen.

KASPAR: 1585, Feb. 12—1629; b. Malmö; son of a minister: studied theology and philosophy at Rostock and Wittenberg, and afterwards studied medicine. In 1610, he was made doctor of medicine at Basle. He practiced for some time in Wittenberg, and 1613 accepted an invitation to be prof. of the Greek language and of medicine at Copenhagen, where, 1624, he became prof. of theology. He died at Sora. His *Institutiones Anatomicæ* (Wittenb., 1611, often

reprinted), which were translated into the German, French, English, and Oriental languages, served in the 17th c., in many universities as a text-book for prelections. All his sons are known in the learned world, especially Jacob and Thomas.

JACOB: 1623-53; d. Heidelberg: the orientalist, known as the editor of the cabalistic works, *Bahir* and *Majan Hachochma*.

THOMAS: 1616, Oct. 20—1680, Nov. 4; equally celebrated as philologist, naturalist, and physician: became, 1647, prof. of mathematics, and, 1648, prof. of anatomy, at Copenhagen; demitted these offices 1661, and thereafter lived in retirement upon his estate of Hagestad. In 1670, the king appointed him his physician in ordinary. He enlarged the new edition of his father's *Anatomy* (Leyd. 1641; often reprinted) with a mass of new observations. Besides many other valuable anatomical and medical works, his works on biblical and other antiquities, and on natural philosophy, are particularly worthy of notice. He was one of the most learned and studious of physicians, and warmly defended Harvey's doctrine of the circulation of the blood.

KASPAR: 1654-1704; son of Thomas; was likewise an accomplished anatomist.

THOMAS: 1659-90; son of Thomas: author of a standard work on northern antiquities—the *Antiquitatum Danicarum Libri Tres* (Copenh. 1689); also of *De Causis Contemptæ a Danis adhuc gentilibus Mortis*.

BARTHOL'OMEW, SAINT: Carribbean island, bought by Sweden 1785 from the French West India Co., and acquired again by France through purchase 1878. It lies about 30 m. n. of St. Kitts, about 17° 40' n. lat. and 63° e. long; area only 8 sq. m. The soil is fertile, though, as is generally the case in the group, fresh water is scarce. Like most of its neighbors, St. B. is difficult of access, its only harbor (Le Carenage) being on its w. side, near the chief town Gustavia. Pop. abt. 2,400.

BARTHOLOMEW, *bār-thōl'o-mū*, SAINT: one of the twelve apostles, supposed to be the same person as Nathanael. He was a native of Galilee, but nothing authentic is known regarding his life and labors. According to the traditionary record of Eusebius, he carried Christianity into India; Chrysostom speaks of him as a missionary in Armenia and Asia Minor, while a still later legend declares that he was crucified at Albania Pyla, the modern Derbend, a town on the Caspian Sea. The relics of St. B. 'appeared' at Rome 983, and are preserved there in the church bearing his name. The Rom. Cath. and Anglican Churches hold a festival in his memory Aug. 24; the Greek Church, June 11. The primitive church possessed an apocryphal Gospel under his name, but it is now lost.

BARTHOL'OMEW FAIR: formerly held at West Smithfield, London; discontinued since 1855. The charter of this fair was granted by Henry I., 1133, to a monk named Rayer or Rahere, who had been his jester, and had founded the church and priory of St. Bartholomew,

with a hospital attached. The fair was held annually at the festival of St. Bartholomew (Aug. 24, old style), and, like all ancient fairs, was originally connected with the church, under whose auspices Miracle-plays (q.v.), founded on the legends of saints, were represented, which gave place to Mysteries, and these again to Moralities; afterwards, non-religious stories were introduced—the origin of the modern English drama. After the opening of the fair, it was customary anciently for wrestlers to exercise their art. Wild rabbits were hunted for sport by the mob, and the scholars from the different London schools met at the priory for disputations on grammar and logic, and to wrangle together in verse. In the first centuries of its existence B. F. was one of the great annual markets of the nation, and the chief cloth-fair of the kingdom. The clothiers of England and the drapers of London had their standings, during the fair, in the priory churchyard. A pedler's court, or court of *Pie Poudre* (see PIEPOWDER COURT), was held within the priory gates, for debts and contracts, before a jury of traders formed on the spot, at which the prior, as lord of the fair, presided by his representative or steward. In 1445, four persons were appointed by the court of aldermen as keepers of the fair and of the court of *Pie Poudre*, the city being thus in that court represented as joint lord of the fair with the prior. As the fair prospered, its chief articles of traffic were, in the first instance, cloth stuffs, leather, pewter, and live cattle; while it was rendered attractive to the crowds that attended it by a variety of popular amusements. All manner of shows, exhibitions, theatrical booths, etc., thronged the fair; and tumblers, acrobats, stilt-walkers, mummers, mountebanks, and merry-andrews resorted to it in great numbers. On the suppression of the religious houses, the priory was disjoined from the hospital, and the latter, 1546, Dec. 27, was, by Henry VIII. transferred to the corporation of London, a new hospital being established on the site of the former. The priory was purchased for £1,064, 11s. 3d. by Sir Richard Rich, chancellor of the court of augmentations, afterwards lord chancellor under the title of Lord Rich, and became his town-house. Towards the close of the 16th c., streets of houses began to be built on the site of the Cloth Fair, a name which is still retained. In 1593, the keeping of the fair was for the first time, suspended by the raging of the plague. The same thing happened 1603, 1625, 1630, 1665, and 1663. At this fair, foreigners were at first licensed for three days, and the city freemen as long as they would, which was for six or seven days. In 1661, after the Restoration, the fair lasted for fourteen days or more. In 1685, it was leased by the city to the sword-bearer. After this period, it began to decay as a place of trade. In 1691, the continuance of the fair was limited to three days, besides the proclamation-day. In 1701, it was represented as a nuisance. In 1750 it was again limited to three days. By the alteration of the calendar, 1752, the fair, in the following year, was, for the first time proclaimed Sept. 3. In 1798, the question of abolishing the fair was discussed by the corporation. It had long

BARTHOLOMEW PIG—BARTHOLOMEW'S DAY.

ceased to be a place of traffic, and was only considered as a haunt of amusement, riot, and dissipation. The fair had latterly been attended only by the keepers of a few gingerbread-stalls; and in 1839, measures were first seriously adopted for its suppression. In 1840, the exhibitions were removed to Islington. Wild-beast shows were allowed, but dwarfs and giants were excluded. In 1850, the last proclamation by the lord mayor took place, and in 1855 the once famous B. F. came to an end. An octavo volume, entitled *Memoirs of Bartholomew Fair* by Henry Morley, was published, London, 1859.

BARTHOLOMEW PIG: a roasted pig, sold piping hot at Bartholomew Fair. The Puritans opposed this feature of the fair, and indeed the fair itself.

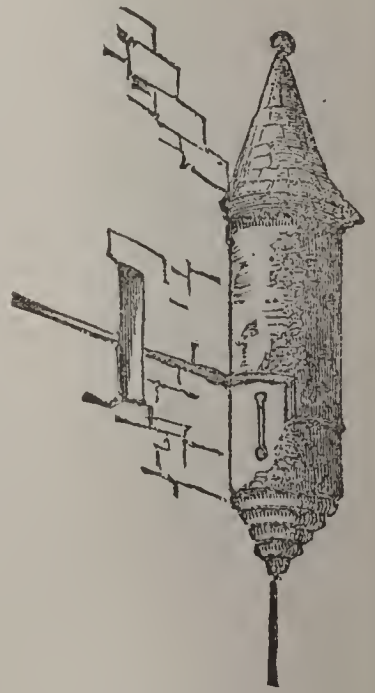
BARTHOLOMEW'S (ST.) DAY (F. *La St.-Barthélemy*; Ger. *Bartholomäusnacht*, i.e., Bartholomew's Night, or *Bluthochzeit*, i.e., Blood-wedding): the appellation given to the massacre of the Protestants in Paris on the night of St. B. D., 1572, Aug. 24-25. After the death of Francis II., 1560, Catharine de' Medici (q.v.), as regent for her son, Charles IX., a minor, in order to annoy the Rom. Cath. party of the Duke Francis of Guise (q.v.), had granted an edict of toleration to the Reformed, at whose head was the Prince of Condé. Both parties took up arms, and there ensued a war which lasted eight years, the cruelties of which, through mutual exasperation, are almost incredible. The Duke Francis of Guise was murdered by an assassin, and the Prince of Condé was taken prisoner in the battle of Jarnac, 1569, and shot. The young Prince Henry of Bearn, afterwards King Henry IV., nephew of Condé, then became leader of the Reformed, with Admiral Coligny (q.v.). It was not till the strength of both sides was exhausted, that the peace of St. Germain-en-Laye was concluded, 1570, whereby the Reformed obtained the free exercise of their religion. Catharine de' Medici now expressed much friendliness towards the Reformed, and even endeavored to lull them into negligence by the marriage of the youthful Henry of Bearn, with her daughter Margaret, 1572, Aug. 18. Admiral Coligny was drawn to Paris, and the king not only made him costly presents, but gave him an important office in the council of state. However, all this was only the basest hypocrisy. When, by means of the marriage of Prince Henry, the most eminent of the Reformed had been allured to Paris, Admiral Coligny was wounded by a shot from the window of the palace 1572, Aug. 22. The king indeed, hastened to him, and swore to avenge him; but, on the very same day, the king was persuaded by his mother that the admiral sought his life. 'By God's death!' he exclaimed, 'let the admiral be slain, and not him only, but all the Huguenots, till not one remain that can give us trouble!' That night, Catharine held a council, and appointed St. B. D. for carrying into effect the long-contemplated massacre. After Coligny had been murdered, a bell in the tower of the royal palace, at the hour of midnight, gave the signal to the assembled com-

panies of citizens for the general massacre of the Huguenots. The king himself fired from his palace upon those that were fleeing past. The Prince of Condé and the King of Navarre only saved their lives by going to mass, and appearing to conform to the Rom. Cath. Church. The provinces were at the same time summoned to similar slaughter; and although in some of them the officials were ashamed to publish the murderous commands which had been transmitted to them, there were found bloodthirsty fanatics enough, who perpetrated the greatest horrors for several weeks together in almost all the provinces, so that it was reckoned that 30,000 (some authorities make the number 70,000) persons were murdered. The pope celebrated the events of St. B. D. by a procession to the church of St. Louis, a grand *Te Deum*, and the proclamation of a year of jubilee. Many of the Huguenots fled to pathless mountains and to La Rochelle, to which the Duke of Anjou laid siege. Upon receiving intelligence, however, that he had been elected king of Poland, he made an arrangement 1573, July 6, according to which the king granted to the Huguenots an amnesty, and the exercise of their religion in certain towns.

BARTHOLOMEW'S (St.) HOSPITAL, Smithfield, London: originally a part of the priory of St. Bartholomew, founded 1102 by Rahere, the first prior. At the dissolution of the religious houses, it was founded anew by Henry VIII., and the endowment has been subsequently enlarged from various sources, public and private. The hospital contains more than 600 beds, and affords relief to 150,000 patients annually. There is a medical school attached. The revenues are large and ample.

BARTIZAN, n. *bar'ti-zăn'* [a corruption of BRATTICE, which see: OF. *bretesche*, a portal of defense—from mid. L. *brestachĭa*, a wooden defense at the entrance: It *bertesca*, a kind of rampart]: a small overhanging turret which projects on corbels from the angles of towers, or over doorways, or from the parapet and other parts of the building; generally in mediæval castles, for defense, sometimes only for convenience to the inmates.

BARTLETT, JOHN: editor: b. Plymouth, Mass., 1820, June 14; received his education in his native town, and when 16 years old entered business life with a publisher in Cambridge, Mass., succeeding to the direction of the business in 1849, and conducting it for the next 10 years. In 1862 he was appointed volunteer paymaster in the U. S. navy, but



Bartizan.

BARTLETT.

served less than a year. In 1865 he entered the Boston publishing-house of Little, Brown & Co., of which he became senior member 1878. B. has published: *Familiar Quotations* (1854, 8th ed. 1883); *New Method of Chess Notation* (1857); *The Shakespeare Phrase-Book* (1882); and *Catalogue of Books on Angling, Ichthyology, etc.*

BARTLETT, JOHN RUSSELL: Amer. naval officer; b. 1843; entered the navy as midshipman 1859; later was a cadet at the U. S. Naval Academy where he remained till the outbreak of the civil war, when he applied for active duty; took part in the engagements at Forts St. Philip and Jackson, Fort Fisher, the Chalmette batteries, New Orleans, and Vicksburg; was promoted to lieutenant in 1864 and captain 1892; and was retired 1897. When war with Spain was declared 1898 he was recalled to active service and given command of the Auxiliary Naval Squadron, comprising 33 vessels, to protect the Atlantic coast cities.

BARTLETT, JOSEPH JACKSON: milit. officer: 1834, Nov. 4—1893, Jan. 14; b. Binghamton, N. Y.; bro. of William Alvin B., D.D. He received an academic education; studied law; entered the Union army as maj. 27th N. Y. vols. 1861, May; and served to the close, winning the rank of brev. maj. gen. of vols. He took part in the first battle of Bull Run; was in all the battles of the Army of the Potomac; and commanded a div. at the surrender of Gen. Lee. After the war he was U. S. minister to Sweden.

BARTLETT, JOSIAH: statesman: 1727, Nov. 21—1795, May 19; b. Amesbury, Mass. He studied medicine, practiced at Kingston, N. H., and was one of the first to use Peruvian bark in throat diseases. He was a delegate to the legislature, 1765–75, member of the Committee of Safety, 1774, and of the continental congress, 1775–78. He strongly supported the movement for separation from Great Britain, and was the first, after John Hancock, to sign the Declaration of Independence. In 1779 he was made chief-justice of the court of common pleas of N. H., justice of the superior court 1782, and chief-justice 1788. He was a member of the constitutional convention 1789, declined an election to the U. S. senate, was pres. of N. H. 1790–92, and its first governor 1793.

BARTLETT, SAMUEL COLCORD, D.D., LL.D.: Congl. clergyman: b. Salisbury, N. H., 1817, Nov. 25. He graduated at Dartmouth College 1836, and Andover Theol. Seminary 1842. In 1843 he was pastor at Monson, Mass.; in 1846 prof. of intellectual philosophy at Western Reserve College, Hudson, O.; in 1852 pastor of a Congl. church at Manchester, N. H.; 1857 pastor at Chicago, Ill., and prof. of biblical literature in the Chicago Theol. Seminary (Congl.), which professorship he retained till 1859. In 1877 he was made pres. of Dartmouth College Hanover, N. H., which office he resigned 1892. In 1874 B. crossed the desert of El Tih to Palestine, having in view the comparison, in detail, of all the circumstances and conditions of this region with the biblical narrative of the journey of the children of

Israel. He has been a voluminous contributor to the *Bibliotheca Sacra*, the *New Englander*, and the *North American Review*, and has been in demand as an orator at centennial and other patriotic celebrations and at literary anniversaries. Among his published works are: *Life and Death Eternal: a Refutation of the Doctrine of Annihilation* (1866, 2d ed. 1878); *Sketches of the Missions of the A. B. C. F. M.* (1872); *Future Punishment* (1875); *From Egypt to Palestine: Observations of a Journey* (1879); and *Sources of History in the Pentateuch* (1883). D. 1893.

BART'LETT, WILLIAM ALVIN, D.D.: clergyman of the Presb. Chh. 1832, Dec. 4—————; b. Binghamton, N. Y. He graduated at Hamilton Coll. 1852; taught Latin and Greek in the collegiate institute at Mossey Creek, Va.; continued study in Halle and Berlin; graduated at the Union Theol. Seminary; was ordained to the Congl. ministry 1857; held pastorates in Brooklyn (Congl.), where he built the first People's Tabernacle, 1858-68; Chicago (Congl.) 1868-76; and Indianapolis (Presb.) 1876-82; and after 1882 was long the successful pastor of the New York Ave. Presb. Church, Washington, D. C. He was a commissioner to the gen. assembly of the Presb. Church three times. He has an alert mind and is a brilliant preacher, and is notable for executive ability and attractive social gifts.

BART'LETT, WILLIAM FRANCIS: milit. officer: 1840, Jan. 6—1876, Dec. 17; b. Haverhill, Mass. He was a student at Harvard, but went to the front, 1861, as capt. in the 20th Mass. He was at Ball's Bluff, and at Yorktown, 1862, lost a leg. He returned to Harvard, and, having graduated with his class, organized the 49th Mass., and was made its col. He accompanied Gen. Banks's expedition, and at Port Hudson was twice wounded. He organized the 57th Mass., fought in the Wilderness, being promoted brig. gen., and was again wounded. Returning to duty as soon as he could ride, he was taken prisoner at Petersburg, 1864, July 30; was confined in Libby prison, exchanged in a few weeks, given command of the 9th army corps, and brevetted maj. gen. At the close of the war he connected himself with the Tredegar iron works, Richmond, Va., but eventually settled in Pittsfield, Mass., where he died, widely lamented.

BART'LETT, WILLIAM HENRY: 1809, March 29—1854, Sep. 25; b. Kentish Town, London. He made drawings for Britton's *Cathedral Antiquities*, also for his *Picturesque Antiquities of English Cities*. B. visited the continent, the Holy Land, and America, several times, enriching his portfolio with innumerable scenes. Nineteen quarto volumes, containing about 1,000 engravings from his sketches, and letterpress from his own pen and those of his fellow-travellers, Dr. W. Beattie, N. P. Willis, and Miss Pardoe, were devoted to these countries. Several other volumes, of which he was the sole author as well as artist, have also been published. Some of his books had a wonderful success, especially those on Switzerland, the Holy Land, and Egypt. B. died on the voyage from Malta to Marseilles.

BARTOL—BARTOLOZZI.

BAR'TOL, CYRUS AUGUSTUS, D.D.: Unit. clergyman: b. Freeport, Me., 1813, Apr. 30. He studied at Bowdoin College, where he graduated 1832; also graduated at the Cambridge Divinity School 1835. In 1837 he became colleague pastor with the Rev. Charles Lowell, D.D., in the West (Unitarian) Church, Boston. He became sole pastor 1861, and held the same pulpit till 1888. He was known as a poet and essayist, and as a keen and powerful writer and preacher on political and other public questions. Among his works are: *Discourses on the Christian Spirit and Life* (1850, second ed. 1854); *Discourses on the Christian Body and Form* (1854); *Pictures of Europe Framed in Ideas* (1855); *History of the West Church and its Ministers* (1858); *Church and Congregation* (1858); *Radical Problems* (1872); *The Rising Faith* (1874), and *Principles and Portraits* (1880). D. 1900, Dec. 17.

BARTOLINI, *bâr-to-lě'nē*, LORENZO: 1777-1850; b. Vernio, Tuscany: celebrated Italian sculptor. In Paris he practiced his art for some time with little pecuniary success; but at length won great fame and prosperity. He obtained a commission to execute one of the bas-reliefs in the hall of the Vendôme palace, and also the bust of Napoleon over the door of the institute of France. Napoleon himself gave him a multitude of orders, many of which, unfortunately, were never executed. In 1808, the emperor sent him to Carrara, to establish a school of sculpture. Here he remained till 1814; when he accompanied his imperial master to Elba. After the battle of Waterloo, till his death, he resided in Florence, where he was director of the sculpture department in the Acad. of the Fine Arts. Among B.'s multitude of works were busts of Cherubini, Mehul, Madame Regnauld, a magnificent statue of Napoleon I. (now in the United States), several exquisite sepulchral monuments, such as that of Lady Stratford Canning in the cathedral of Lausanne, and various groups, the most celebrated of which are his *Charity*, and *Hercules and Lycus*. In England and France, his style is in general greatly esteemed; in Germany, it is less highly thought of. His figures are characterized by their truthfulness of proportion and classic repose, though they have also a remarkably life-like expression. After Canova, B. is reckoned the most distinguished Italian sculptor of modern times.

BARTOLOMMEO, FRA: see BACCIO DELLA PORTA.

BARTOLOZZI, *bâr-to-lot'sē*, FRANCESCO: 1727-1815, March 7; b. Florence: eminent engraver. After executing at Rome his admired plates from the life of St. Vitus, he was induced to settle in England, where he produced his spirited and highly finished engravings of the *Virgin and Child* after Carlo Dolci, and *Clytie* after Annibale Carracci, which entitled him to the front rank in his profession. He engraved numerous specimens of the works of his friend Giovanni Cipriani, of Michael Angelo, Cantarini, Cortona, etc.; and enriched Alderman Boydell's Shakespeare gallery with many fine engravings. In 1805,

BARTON.

in his 78th year, on invitation of the prince regent of Portugal he went to Lisbon as supt. of a school of engravers. There he died. He was grandfather of Madame Vestris, the comedian. See *B. and his Works*, by Tuer (1882).

BARTON, n. *bár'ton* [AS. *beretún*, a courtyard—from *bere*, barley; *tún*, a plot of ground inclosed by a hedge]: in *OE.*, the demesne inclosures of land attached to a manor; the yards and outhouses of a residence.

BARTON, *bár'ton*, BERNARD: 1784, Jan. 31—1849, Feb. 19; b. Carlisle, Eng.: English poet. His parents were members of the Society of Friends, to which body B. adhered through life. In 1810 he became clerk to a banking-house at Woodbridge, in which situation he continued until within two years of his death. His first poetical efforts were published 1812 under the title of *Metrical Effusions. Poems by an Amateur* (1818), and *Poems* (Lond. 1820), increased his reputation, and gained him the friendship of Lamb and Byron. *Napoleon and other Poems* appeared 1822, followed within five years by several other productions. All the poems of B. are pervaded by pious sentiment, and some passages display much natural tenderness and religious fervor, but he is, on the whole, rather a fluent, pleasant versifier than a poet. Some years before his death, he received, through Sir Robert Peel, a pension of £100 sterling. In addition to the works mentioned, he published *Fisher's Juvenile Scrap-book* (Lond. 1836), *The Reliquary* (Lond. 1836), and *Household Verses* (Lond. 1845). After his death, his daughter published *Selections from the Poems and Letters of Bernard Barton* (Lond. 1849).

BARTON—BARTON BEDS.

BARTON, *bâr'ton*, CLARA : philanthropist : b. Oxford, Mass., about 1830 ; daughter of Capt. Stephen B. She was educated at Clinton, N. Y., and early in life became a teacher, and established the first free school in N. J., opening at Bordentown with six pupils. She held a clerkship in the patent office, Washington, from 1854 till the outbreak of the civil war, when she gave her services to the care of wounded soldiers on the battle-field. After the war closed, she devoted some time, at her own expense, and later as the agent of the government, to the search for the missing. She lectured on her war-experiences 1866-7, then went to Switzerland. She aided the Grand Duchess of Baden to establish hospitals at the breaking out of the Franco-Prussian war, and superintended the supplying of work to the poor of Strasburg after the siege 1871. Her services won her the decoration of the golden cross of Baden, and the iron cross bestowed by the German emperor. She was in charge of the distribution of public supplies to the destitute of Paris 1872. On the organization of the American Red Cross Society, 1881, she became its pres., and had charge of the relief expedition in behalf of the sufferers from the floods of the Ohio and Mississippi rivers 1884 ; also of that in behalf of the Johnstown sufferers, 1889, June. She was the govt. representative at the Red Cross conference, Geneva, Switzerland, 1884 ; also delegate to the international peace convention at the same place, the same year ; besides being special commissioner for foreign exhibits at the New Orleans Exposition 1883. She possesses remarkable executive ability, and her reputation as a practical philanthropist is world-wide.

BARTON, ELIZABETH, commonly called 'the Holy Maid of Kent' : a wretched creature subject to spasmodic nervous affections, during which she gave utterance to incoherent exclamations and phrases. About 1525, she was servant in a tavern at Aldington, Kent ; and the cunning priest of the parish, seeing her in her paroxysms, conceived the idea of presenting her to the world as a prophetess. Under his directions, she played her part so well that not only the common people, but even men of intellect and education like Sir Thomas More and Barham, Abp. of Canterbury, were deceived. The former, however, afterwards recognized her true character. She became a nun, and when, in 1532, Henry VIII. quarrelled with the court of Rome, she was induced to denounce loudly the king's separation from his first wife, and his marriage with Anne Boleyn, and even to prophesy his death. Being arrested by the king's command, with her accomplices, she made before the judges a confession, which was afterwards publicly repeated before the people, of the fraud which had been perpetrated, and was sentenced to ecclesiastical penance and to imprisonment. She was afterwards accused of high treason, and was put to death with some of her accomplices in 1534.

BARTON BEDS: a group of strata, composed of clay

BARTONIA—BARWOOD.

and sand, and forming part of the Middle Eocene formation, included in the Bagshot series (q.v.).

BARTONIA, n. *bar-tō'nĭ-a* [after *Dr. Barton*, an American botanist]: genus of plants belonging to order *Loasaceæ*, or Loasads. The species are fine plants, with large, white odoriferous flowers. Also, a genus of *Gentianaceæ*.

BARTON-ON-HUMBER: a town in n. Lincolnshire, on the s. side of the Humber, 6 m. s.w. of Hull. It is a very ancient place, having been one of the chief ports of the Humber before the foundation of Hull. It was formerly surrounded by a rampart and fosse, as a protection against the incursions of the Danes and Saxons. The ferry across the Humber, on the great road from London to Hull, used to be here; but the London and Hull inland traffic has now been diverted from B. by the steam ferry at New Holland, six m. below Barton. Chief manufactures are ropes, sackings, bricks, tiles, pottery, and whitening. There are quarries of chalk and oolite. The tower of St. Peter's Church, built about the time of the Conquest, has both round and pointed arches; and, with the part of the building to the west, constitutes one of the few existing examples of undoubted Anglo-Saxon architecture. St. Mary's Church is a handsome structure of the 14th c. Pop. (1871) 4,332; (1881) 5,339; (1891) 5,226.

BARTSIA, n. *bärt'sĭ-a* [after *Dr. Bartsch*, a Prussian botanist]: genus of plants belonging to order *Scrophulariaceæ*, or Figworts. Calyx four-cleft; there is no lateral compression of the upper lip of the corolla, while the lower lip has three equal reflexed lobes.

BARU, *bā'rô*: fine woolly substance found at the base of the leaves of the *Saguerus saccharifer* (also called *Arenga saccharifera*), one of the most valuable sago-palms of the Indian archipelago. It is much employed in calking ships, in stuffing cushions, and for other similar purposes.

BARUCH, *bā'rūk* [i.e., the Blessed]: son of Neriah, the person to whom the prophet Jeremiah dictated his oracles. During the siege of Jerusalem by Nebuchadnezzar, both he and the prophet were, by their own countrymen, shut up in a narrow prison, but obtained from the conqueror freedom and permission to choose their own residence. B. remained for some time in Palestine, but afterwards accompanied Jeremiah to Egypt. His subsequent history is unknown. An apocryphal work in the Greek language has come down to us under his name—viz., the Book of B., which contains words of comfort for the Israelites, and predicts the rebuilding of Jerusalem. There is usually appended to it, as chapters vi. and vii., a letter—also apocryphal—of the prophet Jeremiah to the exiles in Babylon.

BAR-WISE, n. *bār'wîz*: in *her.*, horizontally arranged in two or more rows.

BARWOOD, n. *bār'wūd*: a red dyewood brought from Africa; camwood; the *Baphia nitida*, ord. *Léguminosæ* sub-ord. *Cæsalpinieæ*. See CAMWOOD.

BARYCENTRIC—BARYE.

BARYCENTRIC, a. *bă-r-ĭ-sĕn'trĭk* [Gr. *barus*, heavy; *kentrikos*, of or from the centre]: pertaining to the centre of gravity. **BARYCENTRIC CALCULUS**, a kind of calculus designed to apply the mechanical theory of the centre of gravity to geometry. It was first published by Möbius, professor of astronomy at Leipsic. It is founded on the principle of defining a point as the centre of gravity of certain fixed points to which co-efficients or weights are attached. It has now been superseded by the method of trilinear and quadrilinear co-ordinates, to which it led the way.

BARYE, *bă-rĕ'*, ANTOINE LOUIS: French artist, especially in bronze; 1795, Sep. 24—1875, June 25; b. Paris: apprenticed to brass-work and jewellery, and for a time was in Napoleon's army as map-maker, afterward a student of art, and patronized by Louis Philippe. He was laborious in his studies, especially of animal forms and action, but combined the ideal with his scientific realism, and is the acknowledged master in his sphere. More than half a century ago, his colossal bronze lion and serpent in the Tuileries gardens was sneered at as the work of an 'animalist;' but, before his death, he was elected to the French Institute. Among his works are: a colossal lion before the gateway of the Prefecture of the Seine; a lion in relief on the Bastille column; an equestrian statue (at Ajaccio, Corsica) of Napoleon I., and statuettes of Napoleon as gen. and as first consul; four gigantic animals at the Château d'Eau, Marseilles; and, in the Tuileries, statues and various animal pieces; also large human and other figures in the Louvre. Wm. T. Walters of Baltimore has a fine collection of B.'s work, including oriental subjects, and has given to that city four allegorical groups, *War, Peace, Force, Order*, placed in a public square. Other collections, in New York, are those of C. J. Lawrence, T. K. Gibbs, and Mrs. W. T. Blodgett. Hunting-scenes, and conflicts between all sorts of animals, abound in this artist's multitudinous work; and there are some classical fables represented—e.g., *The* ~~sees~~ *sees* *battling with monsters.*

BARYECOIA—BARYTA.

BARYECOIA, *bār-ī-ē-koy'ā* [Gr. *barus*, heavy; *akouein*, hearing]: defective power of hearing; deafness.

BARYGLOSSIA, *bār-ī-glōs'ī-ā* [Gr. *barus*, heavy; *glossē*, tongue]: partial paralysis of the tongue; thickness of speech; difficulty of speech.

BARYLALIA, *bār-ī-lā'li-ā* [Gr. *barus*, heavy; *lalein*, speak]: difficulty of enunciating; baryphonia.

BARYLITE, *bār'ī-lit* [Gr. *barus*, heavy; *lithos*, stone]: silicate of aluminium and barium, occurring in white cleavable masses; found in Sweden.

BARYPHONIA, n. *bār-ī-fō'nī-a* [Gr. *barus*, heavy; *phōne* a sound, the voice]: in *med.*, heaviness, i.e. hoarseness of voice.

BARYSTRONTIANITE, n. *bār-ī-strōn'shī-an-īt* [Eng. *baryta*; *strontian*]: a mineral, called also Stromnite, a variety of Strontianite.

BARYTA, n. *bā-rī'tā* or *bar'itā* or **BARYTES**, n. *bā-rī'tēs* [Gr. *barus*, heavy; *barūtēs*, weight, heaviness. F. *baryte*]: the oxide of the metal barium, forming one of the alkaline earths; the native sulphate of *baryta* is generally known as *awk* or *heavy spar*. **BARYTIC**, a. *bā-rī'tik*. of or containing baryta. **BARYTO-CALCITE**, n. *bā-rī'tō-kāl'sīt* [*baryta*, and *calcite*]: a mineral consisting of sulphate of baryta and carbonate of lime.

BARYTA, or **BARYTES**, or **OXIDE OF BARIUM**, (q.v.—symbol BaO): the earth present in the minerals *witherite* (barium carbonate) and *heavy spar* (barium sulphate). It may be prepared in several ways: 1. By acting upon barium carbonate, $BaCO_3$, by nitric acid, HNO_3 , which causes the disengagement of the carbonic acid, CO_2 , and the nitric acid combining with barium forms the barium nitrate, $Ba(NO_3)_2$. On evaporating the latter substance to dryness, and igniting the residue, the nitric acid volatilizes, and leaves the baryta, BaO . 2. Another mode is to act upon a solution of sulphuret of barium, BaS , by the black oxide of copper (CuO), when an interchange of elements occurs, the sulphur uniting with the copper, producing sulphuret of copper, CuS , and the oxygen with the barium, forming B., BaO , which remains dissolved in the water, and, on evaporation, deposits crystals in the hydrated condition, $BaH_2O_2, 8H_2O$. B. belongs to the group of alkaline earths, and has the prop-



Crystal of Barium Sulphate.

erty of acting like an Alkali (q.v.) on coloring matters. It has a very harsh taste, is highly caustic, and is very poi-

BARYTOCALCITE—BARYTONE.

sonous. A solution of B. is used by the chemist as the best indication of the presence of carbonic acid gas in the atmosphere, for when a plate or other vessel containing the solution is exposed to the air, the carbonic acid floating across the surface combines with the B. and forms a film of white carbonate of barium, BaCO_3 . Otherwise, B. possesses little interest, as it is not put to any commercial or medicinal use. The compounds of B., are, however, of considerable importance. *Barium sulphate*, BaSO_4 , otherwise called *ponderous* or *heavy spar*, is found in the mineral kingdom, diffused in fissures or cracks, passing through other rocks, especially in Cumberland, Durham, and Westmoreland, and in the island of Arran. At the latter place, an extensive mine of heavy spar has been worked for many years. In its native condition, barium sulphate occurs of a crystalline texture, is sometimes found pure and white, but generally presents a flesh-red color, from the red oxide of iron (rust) incorporated in it. Riddance of the rust is had by reducing barium sulphate to a fine powder under rollers or travelling-wheels, and subjecting the pulverized material to the action of dilute sulphuric acid, which dissolves the red oxide of iron and leaves the barium sulphate as a dense white powder. The principal use of *heavy spar* is as a pigment under the name of *permanent white*, but having little opacity, it cannot be employed by itself, but only when mixed with ordinary white lead. When added to the latter, however, it must be regarded as an adulteration, for the little opacity it possesses renders it of service only as an increaser of the bulk of the white lead. Several mixtures of barium sulphate and white lead are manufactured, and are known in commerce. *Venice White* contains 1 part barium sulphate and 1 part white lead. *Hamburg White* contains 2 parts sulphate and 1 part white lead. *Dutch White* contains 3 parts sulphate and 1 part white lead. Native barium sulphate has been employed by the celebrated potter Wedgwood in the manufacture of jasper ware, and for the formation of white figures, etc., on colored jars and vessels. For *Barium Carbonate* found native as *Witherite*, and *Barium Nitrate*, previously referred to in this article, see BARIUM.

BARYTOCALCITE, n. *ba-rî-tô-kāl'sit* [*baryto*; *calcite*]: monoclinic transparent or translucent mineral, called also Bromlite.

BARYTOCELESTITE, n. *ba-rî-tô-sěl'ës-tît* [Eng. *baryto*; *celestite*]: a mineral found near Lake Erie; called by Thomson, Baryto-sulphate of Strontia.

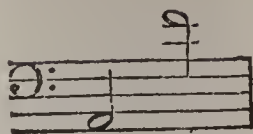
BARYTON, *bār'i-tôn* (Viol di Bardoni): an old musical chamber instrument, somewhat like the viol di gamba in tone: had a broader finger-board, with seven gut-strings, while under the neck were sixteen strings of brass wire, which were touched with the point of the thumb, to produce a sound, while the gut-strings were acted on by a bow.

BARYTONE, or **BARITONE**, a *bār'î-tôn* [It. *baritono*—from Gr. *barus*, heavy; *tonos*, a tone]: pertaining to a grave

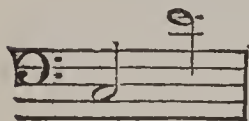
BARZONI—BASAL.

deep sound: N. a male voice between tenor and bass, with the tone-character more allied to the bass.

The compass of a B. voice is from



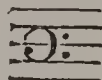
but the principal notes of the voice are from



; and these should possess the energetic

character of a bass voice, and, above all, be produced from the chest, excepting perhaps the highest. In former times, the music for this species of voice was written on a staff

with the F clef placed on the 3d line, thus·



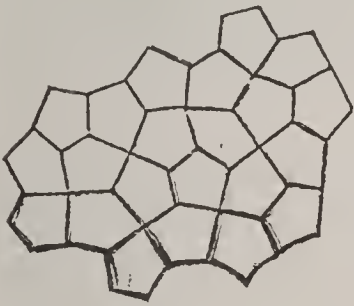
BARZONI, *bard'zo-nē*, VITTORIO: 1768–1829; b. Lonato; an Italian political and historical writer. Reared at Brescia in the ideas of the old regime, he not only failed to be suddenly converted, as so many others, to the principles proclaimed by the French revolution, but became, on the contrary one of its most violent opposers. Seeing in that immense social renovation only the dark side of the excesses committed, and unfortunately inevitable in such crises, he published, 1794, under the title of the *Recluse of the Alps*, a pamphlet in the form of a dialogue, in which he made a passionate attack upon the revolution. His hostility deepened into hatred when he saw the French successfully invade Italy, and make it the theatre of a bloody and devastating war, and especially when, the following year, Gen. Bonaparte, after having gained possession of Venice delivered that city to the Austrians, by the treaty of Campo-Formio (1797). Profoundly indignant, he published a pamphlet entitled the *Romans in Greece* (1797), which produced a great sensation throughout Italy. It designated Napoleon under the name of Flaminius, the Emperor Francis II. under that of King Philip, and the Italians as the oppressed Greeks. Bonaparte ordered his arrest and the burning of all the pamphlets that could be found. B. also published the *Carthaginians* (1805); *Discrizioni* (1814); the *French Revolution* (1799), in which are some curious facts; and *Motives of the Rupture of the Treaty of Amiens* (1804). All the works of this author, blinded very often by a partisan spirit, abound in incorrect assertions and impassioned declamation.

BAS, *bās*, or BATZ, *bâts*: small island in the English Channel, belonging to France; off the n. coast of the dept. of Finisterre; length about 3 m., breadth 2. It has a light-house, lat. 48° 45' n., long. 4° 1½' w., on a height 223 ft. above the sea. It is defended by two forts and four batteries. Pop. above 1,000, whose chief occupation is fishing.

BASAL, a *bā'sāl*: see under BASE 2.

BASALT.

BASALT, n. *bă-sawlt'* [Gr. and L. *basal'tes*; Ethiopic, *basal*, iron; F. *basalte*]: a rock, grayish-black, eruptive in its origin; popular name for trap forming columns or prisms, three, five, or more sided, regular and jointed. **BASALTIC**, a. *bă-sawlt'tik*, pertaining to or containing basalt. **BASALTINE**, *bă-sawlt'tin*, a synonym of augite. **BASALTIFORM**, a. *bă-sawlt'ti-fawrm* [L. *forma* shape]: resembling basalt in its columnar structure. **BASALTOID**, a. *bă-sawlt'toyd*, presenting the appearance of basalt; having basalt in its composition. **BASALTING**, making from the scoriæ of blast-furnaces blocks suitable for paving or for building. **BASALT WARE**, stoneware of dull glossy black color, first made by Wedgwood.—*Basalt* (according to Lyell's *Manual*, 6th ed.,) is 'a term difficult to define, the name having been used so comprehensively, and sometimes so vaguely. It has been generally applied to any trap rock of a black, bluish, or leaden-gray color, having a uniform and compact texture. Most strictly, it consists of an intimate mixture of felspar, augite, and iron, to which a mineral of an olive-green color, called olivine, is often superadded in distinct grains or nodular masses. The term dolerite is now much used for this rock, when the felspar is of the variety called Labradorite, as in the lavas of Etna.' He adds that, according to Daubeny, the *Labradorite* has a zeolitic reaction due to the presence of water in composition. LeConte, in his *Elements of Geology*, says that B. is a very dark, crypto-crystalline variety of dolerite. Dana's *Manual of Geology* makes



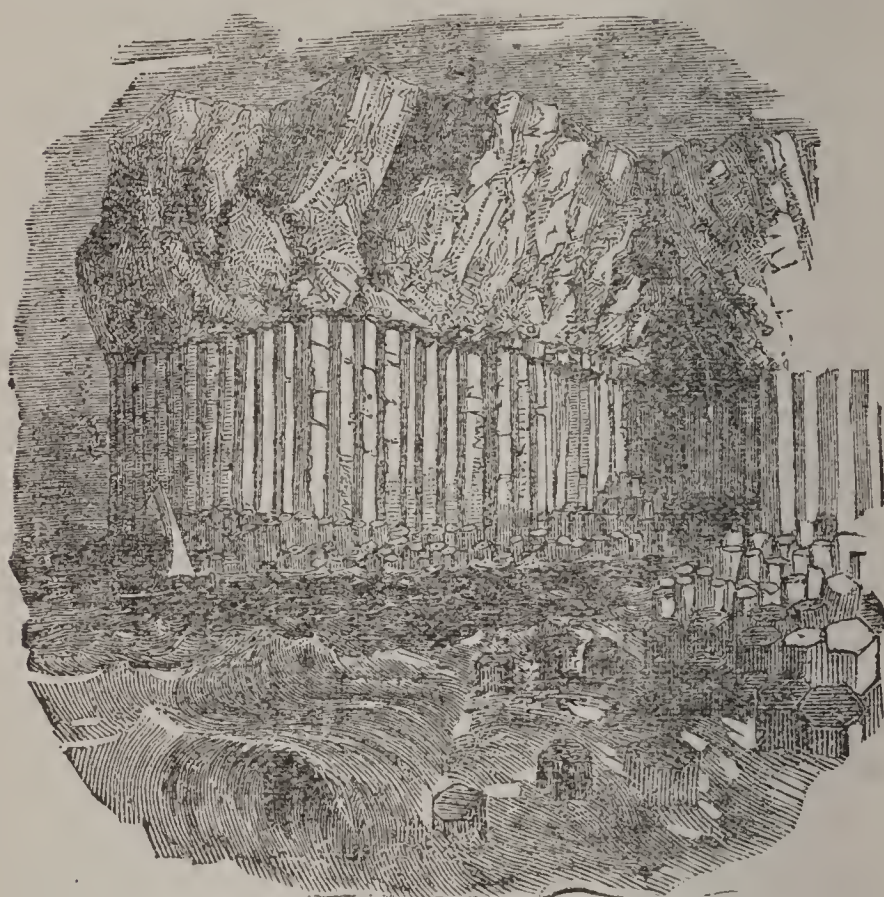
Basalt Section.

it the crypto-crystalline and scoriaceous variety of *dolerite*; and a gray fine-grained variety is *aname-site*; and he describes *dolerite* as crystalline granular to crypto-crystalline; dark gray or grayish, bluish or greenish black, brownish, reddish; sp. gr. 2.75–3.2; consisting, in one example, of a mixture of 47.60 Labradorite, 49.60 augite, with magnetite, the last usually in disseminated grains. Labradorite is a lime felspar, and augite a sub-species of pyroxene.

The term B., restricted by Lyell as above, and by Dana to scoriaceous varieties of dolerite, has also another and merely popular restriction to the compact trap (weathering brown) which tends to assume a columnar form, as in Fingal's Cave, and on the Columbia river; less distinctly in the Palisades and the Orange Mts., N. J., and in the Holyoke range, Mass., etc. These are called 'basaltic columns;' they have usually from five to seven sides. They are frequently divided transversely by joints at nearly equal distances. The direction of the columns is always at right angles to the greatest extension of the mass, so that when B. occurs as a bed, either overlying, or interstratified with the regular strata, the columns are perpendicular, while they are horizontal when the B. exists as a dike.

The columnar structure was at first believed to be owing to a modification of the crystalline force. Such a supposi-

tion was favored by the external form of the columns; but the total absence of internal structure showed that the explanation must be sought elsewhere. In 1804, Gregory Watt propounded a theory of the origin of the structure,



Fingal's Cave.

ascribing it to the pressure of numerous spheres on each other, during the process of cooling, such spheres being produced in planes of refrigeration or absorption. They increase by the successive formation of external concentric coats, until their growth is prevented by the contact of neighboring spheres; and as in a layer of equal-sized spheres, each is pressed on by six others, the result is that each sphere will be squeezed into a regular hexagon. Watt published this theory as the result of his celebrated observations on the cooling of a mass of molten basalt, in which he noticed the production of numerous spheroids, having a radiate structure. Many greenstones, in weathering, present such a structure, giving often to the rock the appearance as if it were composed of a mass of cannon-balls, and Watt's experiments satisfactorily explain this—also the ball-and-socket jointing of the columns, which were formed by pressure at right angles to them.

BASANITE, n. *bāz'ān-īt* [Gr. *bāsānīzō*, I test; *basānos*, a touchstone]: a mineral—called also **LYDIAN STONE** or **LYDITE**, from the province of *Lydia*, where first found; a compound variety of flinty slate of a velvet-black color, used for testing the purity of gold and silver—seldom used in this way now; is a flinty jasper, often called Touchstone and more or less crystals of augite.

BASANTGANJ: walled town of India, in the chief commissionership of Oude, 55 m. n.w. from Allahabad. Pop. 6,000, of whom one-half are Mussulmans.

BAS BLEU, n. *bá bló* [F. *bas*, stocking; *bleu*, blue]: see **BLUE-STOCKING**.

BAS-CHEVALIER, *bâ-shě-vâ-lēr'* [Fr. *bas*, low, *chevalier*, knight]: knight of low degree; one by the bare tenure of a military fee; called *low*, or *inferior*, as compared to a banneret or a baronet. This supposed inferior grade of knights is a fiction of imagination, and is the result of a false etymological explanation of the word 'bachelor,' as though it were a corruption of '*bas-chevalier*.' See **BACHELOR**.

BASCINET: see **BASENET**.

BASCOM, *bās'kom*, HENRY BIDLEMAN, D.D., LL.D.: 1796, May 27—1850, Sep. 8; b. Hancock, N. Y.: Meth. Episc. clergyman. He received a scant education; was licensed to preach before he was 18 years old; labored on the frontier of O. and Tenn.; was appointed chaplain to congress 1823; was pres. of Madison College, Penn., 1827-8, agent of the Colonization Soc. 1829-31, and prof. of moral science and belles-lettres at Augusta College, Ky., 1831-41; and was chosen pres. of Transylvania Univ., Ky., 1842. He was a delegate to the convention which organized the Meth. Episc. Church, South, 1845. and chairman of the committee on adjustment of the differences between the two branches of the church; was appointed editor of the *Southern Methodist Quarterly Review* 1849; and was elected bp. the same year and ordained three months before his death. He published several collections of sermons and lectures.

BASCOM, *bās'kom*, JOHN, D.D.: educator: b. Genoa, N. Y., 1827, May 1. He graduated at Williams College 1849, and at Andover Theol. Sem. 1855. In 1852-3 he was a tutor in Williams College, and 1855-74 was prof. of rhetoric in the same institution, acting also as pastor of a church at North Pownal, Vt., 1856-64. In 1874 he was made pres. of the Univ. of Wis., occupying also the chair of mental and moral philosophy. He resigned both these offices 1886, June 23. B. wrote: *Political Economy* (1859); *Æsthetics, or the Science of Beauty* (1862, revised ed. 1881); *Rhetoric* (1865); *Principles of Psychology* (1869, revised ed. 1877); *Science, Philosophy, and Religion*, Lowell Lectures (1871); *A Philosophy of English Literature* (1874); *Philosophy of Religion, or the Rational Grounds of Religious Belief* (1876); *Comparative Psychology, or Growth and Grades of Intelligence* (1878); *Ethics, or Science of Duty* (1879); *Natural Theology* (1880); *Science of Mind* (1881); *The Words of Christ as Principles of Personal and Social Growth* (1884); *Problems in Philosophy* (1885); and *Sociology* (1887).

BASCULE—BASE.

BASCULE, *bās'kūl* [F. *bascule*, formerly *bacule*, see-saw; prob. from *battre*, to hit, to bump, and *cul*, fundament]: balancing lever; in particular an arrangement by which one portion of a bridge balances another. **BASCULATION** [F. *basculer*, to swing, to see-saw]: movement that swings back into the normal position a retroverted uterus. **BASCULE-BRIDGE**, drawbridge acting on the principle of the balance; balance-bridge. It consists of a bridge-way whereof the overhang beyond an abutment is counterbalanced by weights or by a portion of the roadway extending backward from the abutment.

BASE, a. *bās* [F. *bas*, mean, low—from It. *basso*; L. *bassus*; Gr. *bathus*, deep]: low and deep; mean; worthless; vile; of low station; deep; grave; inferior, as a metal other than silver or gold. **BASE'LY**, ad. *-lī*, in a base or dishonorable manner. **BASE'NESS**, n. vileness; worthlessness; in *OE.*, bastardy. **BASES**, n. plu. *bā'sēs*, in *OE.*, a kind of mantle or skirt extending from the middle to the knees, or lower, forming the lower part of the dress; the stockings. **BASE-BORN**, a. born out of wedlock; vile. **BASE-HEARTED**, a., or **BASE-SOULED**, a. vile in heart or spirit

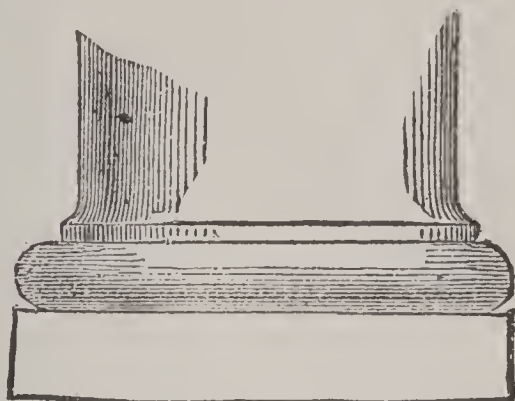
BASE, n. *bās* [F. *base*—from L. and Gr. *basis*, the foundation—from Gr. *baino*, I go—*lit.*, what one walks upon]: the bottom; the foundation; the foot; the support; the principal ingredient in a compound body; in *chem.*, applied to such bodies as are converted into salts by addition of acids; the low or grave parts in music: V. to found or establish on a base. **BA'SING**, imp. **BASED**, pp. *bāsd*. **BASIC**, a. *bā'zīk*, acting as a base; possessing the base in excess. **BASAL**, a. *bā'sāl*, forming the base. **BASELESS**, a. *bās'lēs*, without foundation. **BASILAR**, a. *bās'ī-lēr*, in *bot.*, attached to the base of an organ. **BASE'MENT**, n. the ground floor; the part below the level of the street; the part on which the base is placed. **BASIS**, n. *bā'sīs* [L.]: the pedestal of a column; that on which anything is raised: plu. **BASES**, *bā'sēs*. **BASECOURT**, the outer or lower yard of a castle or feudal mansion, which contained the stable-yard and accommodation for servants. It was distinct from the principal quadrangle, and was sometimes constructed of timber. **BASE-LINE**, in *perspec.*, the common section of a picture and the geometrical plane; in *surv.*, a line, sometimes exceeding 100 miles in length, measured with the greatest possible exactness, with the view of determining the relative positions of objects and places; longer *base-lines* are measured by triangulation. **BASE OF OPERATIONS**, the line of country or fortresses from which military operations can be advanced by troops, and munitions of war supplied, and to which retreat can be made in case of necessity. **BASE-BALL**, a game at ball, so named from *bases* or *bounds* which mark the circuit each player must make.

BASE, or **BARS** [*bars* seems the older form, of which *base* is probably a corruption]: formerly a game for children, the full name being *Prisoner's Base*; consisting mostly of successive attempts by single players on one of the two sides to catch players of the other side as they successively

BASE.

ventured into a certain intermediate space away from their base.

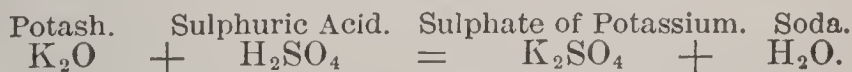
BASE: the foot or lower member of a pillar, on which the shaft rests. Of the classical orders, the Doric column alone had no base. The height of the B. is usually about half the lower diameter of the shaft; and it is divided into



Tuscan Base.

the *plinth*, or flat projecting square block or blocks, immediately above the ground, and the *moldings* (q.v.), or fillets, which surround the column, and are usually circular. In the early Norman style, the bases of pillars still retained, from the Romanesque, forms closely resembling the Tuscan order. As Gothic architecture advanced, and emancipated itself from the arbitrary rules by which the classical orders were governed, bases became infinitely varied in detail, though never departing from the original conception of a firm foundation for the column.

BASE, in Chemistry: term applied to a compound body, generally consisting of a metal united with oxygen. Thus, the metal potassium, K, when it combines with oxygen, O, forms the oxide K_2O , which unites with water, yielding the base potash or caustic potash, KOH; and similarly lead, Pb, and oxygen yield the base oxide of lead, or litharge, PbO . A distinguishing feature of a base is that it is capable of entering into double decomposition with an acid, more or less neutralizing its acid properties, and forming a Salt (q.v.) and water. Thus, the base potash combines with sulphuric acid to form the salt sulphate of potash and water, as represented by the following equation:



So also potash and nitric acid, HNO_3 , yield the salt nitrate of potassium, or nitre, KNO_3 . Occasionally sulphur replaces the oxygen in a base. Thus, the metal potassium, K, unites with sulphur, S, to form the *sulphur* base, sulphide of potassium, K_2S , which can unite with a sulphur acid like sulpharsenious acid or orpiment, As_2S_3 , to make the salt sulpharsenite of potash, K_2S, As_2S_3 . The metal half of a base need not be a simple element, but may be a compound body which, for the time, plays the part of a simple substance. Thus, the compound ethyl, C_2H_5 , can com-

BASE.

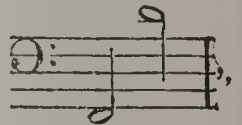
bine with oxygen to form ordinary ether, $\left. \begin{matrix} \text{C}_2\text{H}_5 \\ \text{C}_2\text{H}_5 \end{matrix} \right\} \text{O}$; and the base thus produced can, in its turn, combine with acids to form salts. A base may be soluble or insoluble in water. Thus the bases potash, K_2O , soda, Na_2O , ammonia, NH_4HO , baryta, BaO , strontia, SrO , lime, CaO , and magnesia, MgO , are more or less soluble in water; while the oxide of iron, or rust, Fe_2O_3 , and the red oxide of mercury, HgO , are insoluble in water, but soluble in acids. For *organic* bases, etc., see ALKALIES: ALKALOIDS: AMINES: CHEMISTRY.

BASE, *bās*, in Heraldry: the lower portion of the shield. There is a dexter B., middle B., and sinister B., marked by the letters G, H, I, in the accompanying diagram, in which, for the convenience of the heraldic student, the other points of the escutcheon are also indicated. The *chief* or principal part of the escutcheon is the top, marked A, B, C. The *dexter* or right-hand side is that marked AG; the *sinister* or left-hand side, CI; for the shield is always supposed to be on the arm of the wearer, and it is his right and left hands, not those of the spectator, which are kept in view. The surface of the shield is called the *field*.

IN BASE.—When any figure is placed in the B. part of the shield, it is said to be *in base*.

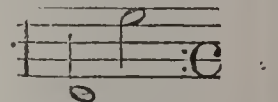
BASE, or BASS, *bās*, in Music: the deepest or lowest part, by whatever instrument performed. The B., next to the upper part, is the most striking, the freest in its movements, and richest in effect. Its movement downwards is unfettered, unconcealed, and undisturbed, whereas the middle parts are circumscribed and concealed in respect to harmony, the B. is the most important part in music, containing more frequently the fundamental notes of the chords, while on it is formed that most important and effective figure in music called ‘organ-point’ (q.v.).—B. is also the name of the lowest and deepest quality of the human voice.

The compass of a B. voice is generally from



which should all be chest-notes, except, perhaps, the highest

The most useful range, however, is from



In the characteristic use of the B. voice, the old masters were unquestionably the greatest, especially Handel and Bach. The B. voice begins to show itself at the years of manhood, and is generally a change from the alto voice of a boy.—Base is also the name of an old stringed instrument, with from five to six strings, tuned variously to suit the music, and played with a bow. It was a sort of middle instrument between the contra-bass and violoncello, but is now out of use. Double B. (contra-bass) is the deepest-toned of stringed instruments.

BASE-BALL.

BASE-BALL: a game almost as widely known as cricket, although not so ancient. There is no doubt that B. originated from the old game of Rounders, a native field-sport of Great Britain. Rounders was a popular game in this country for many years before the introduction of the game of B., which seems to have been in 1842, when a party of gentlemen organized the famous Knickerbocker Club of New York city. Such a thing in those days as playing a regular match game was unheard of. The club was formed simply for recreation, and on stated occasions they would meet on the field for exercise. The president, or, in his absence, the vice-president, of the club appointed the umpire, who kept a book, and noted all the violations of the by-laws and rules during the exercise, and gave decisions, from which there could be no appeal. The game then consisted of 21 counts or aces; but at the conclusion an equal number of hands had to be played. The ball then had to be pitched, and not thrown to the bat. The general principles of the game as drafted in those days, are still in vogue, although many radical changes have been made from year to year as the game developed from its crude state to its present scientific form. A marked change from the game of Rounders was made at that time in abolishing the throwing of the ball at the batsman when he became a base runner. If the runner was touched, or the ball held on the base before he reached there, it answered the same purpose. The first regular match game played between two opposing clubs, was 1846, June 19, between the Knickerbocker and New York clubs, in which the latter won by 23 to 1 in four hands or innings. The second regular match game was not played until 1851, June 3, when the Knickerbockers defeated the Washingtons in an eight-inning game by 21 aces to 11. Many other clubs were soon organized, and B., as it was then termed, began to grow rapidly in public favor. Though the rules which governed the play of the various clubs of this early period differed in many respects from those now in force, they covered all the main points of the game as now played. The main distinction was in the liberty given to the players, for the pitcher could move as he liked, provided he did not overstep his boundary line, which was but 45 ft. from the batsman, and the batsman was required only to stand back of the six-foot line crossing the home base; on the other hand, the pitcher could send the ball only by a square pitch or toss.

The first definite step toward organization and uniformity was the convention of 1858, which resulted in the incorporation of 'The National Assoc. of B. Players,' and in the acceptance of the field plan and measurements as shown in the diagram. (See Plate 13). The earliest phase of professionalism was the sharing of gate-money during this period by the old Atlantic, Mutual, Eckford, Athletic, and Philadelphia clubs. The first regular professional B. team was that of Cincinnati, 1868, popularly known as the *Red Stockings*, under the veteran George Wright. It was the first regular salaried team, and from that year may be dated the existence of professional B. The 'Red Stockings' had

BASE-BALL.

been trained for the season's campaign of 1869 as no other team had ever been, and the result was strikingly successful, for, in the 57 matches which they played, they scored 2,389 runs against their various opponents' 574. They travelled 10,789 miles in their circuit, and their games were witnessed by 179,000 spectators. This success naturally led to the establishment of other regular salaried and trained teams, but as yet no central organization existed, and no such thing as a pre-arranged schedule of games had been heard of or even suggested.

In 1871 the first step toward organized play was taken in the formation of nine teams into a national assoc. which played through this season for a pennant. This was won by the Athletics of Philadelphia, though Boston was the centre of interest in B., and her team captured the pennant in every succeeding year until 1876—by which time the assoc. included 13 teams, 9 in eastern cities and 4 in western.

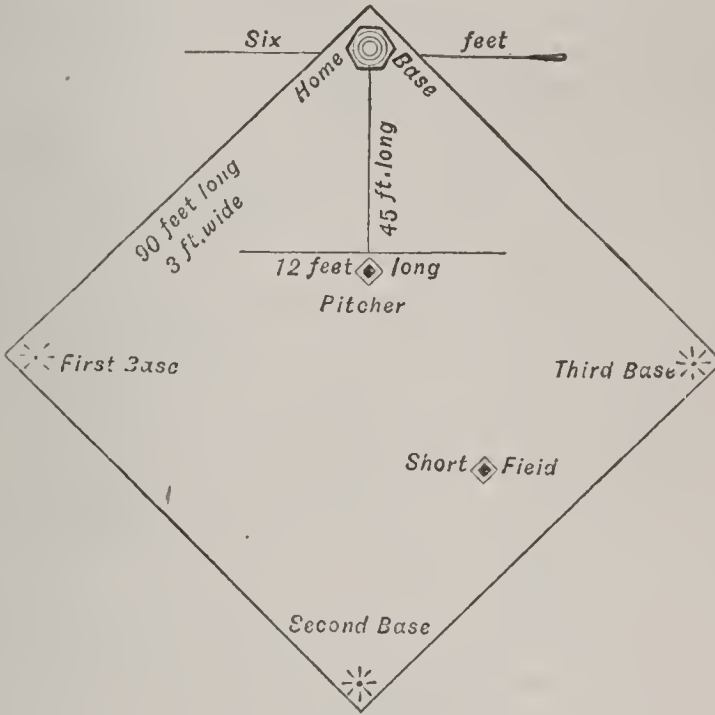
In 1876 the National League was organized of 8 teams; and 1882 the American Assoc. came into existence. The principles on which the National League and the American Assoc. catered for patronage were widely different. The National League prohibited Sunday games and the sale of intoxicating liquors on its club grounds, and required at its matches an admission fee of half a dollar. On the other hand, the Assoc. permitted Sunday games and free sale of liquors, and set its admission fee at a quarter of a dollar. Till 1886, each of these organizations had its own code of playing rules, which caused no difficulty so long as each assoc. was playing in championship games within its own circuit; but during the interchange of exhibition games, prior to and after the championship season, questions frequently arose entailing much friction and ill feeling. In 1886, Nov., therefore, representatives of the League and Assoc. met at Chicago and drew up a reconstructed code of rules, which was ratified by both bodies at their respective annual meetings, and thereby became 'the national playing rules of professional B.' governing all clubs that are parties to the national agreement. Thus for the first time a uniform code was secured. By these rules many changes were effected. First the pitcher was allowed to send only five unfair balls to the bat before he was subjected to the penalty of giving the batsman a base on called balls: secondly, the penalty of giving a batsman a base was inflicted every time the pitcher hit the batsman, provided the latter made all due effort to avoid being hit: further, the pitcher was required to stand in a fixed and defined position when in the act of delivering a ball to the bat. The effect of these rules was to reduce the speed of the pitcher's delivery and to force him to obtain a better command of the ball and depend more on a skillful delivery than on speed. The new rules governing balks were also made more stringent, disallowing entirely the undue latitude hitherto given to pitchers to catch runners at unawares off bases.

In the fall of 1888 it became evident that there was already a movement organized by the players of the National League, known as the 'Brotherhood of Professional B

Scorer's Position

Catcher

Umpire's Position



Right Field

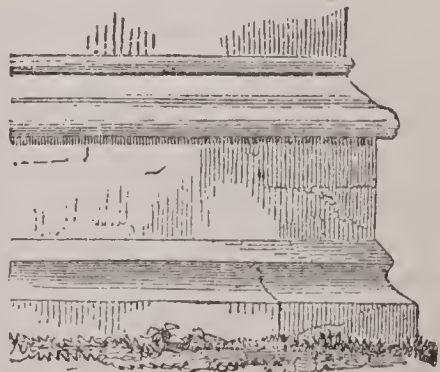
Left Field

Centre Field

Diagram of Base-ball as used in 1858.



Base, Corinthian.



Base-molding.

Players,' to take the control of the players out of the hands of the National League and practically break up the protective compact arrived at in 1886, known as the national agreement. In 1889-90 the players' revolt broke up the harmony, and for a time placed the prospects and popularity of the game in jeopardy. This struggle resulted in a movement which has placed B. on a firmer footing than ever before, by the creation at Indianapolis, 1891, Dec. 15, out of the old rivals, the League and Association, of a new twelve-club organization known as the 'National League and American Assoc. of B. Clubs,' with clubs in Boston, New York, Brooklyn, Philadelphia, Baltimore, and Washington in the east; and Pittsburgh, Cleveland, Chicago, Cincinnati, Louisville, and St. Louis in the west.

In the season of 1892 the new association played in two circuits, e. and w., and two series of games in each circuit, the victor in each circuit playing off the finals. The popularity of B. appears in the fact that these games were witnessed by 1,812,239 persons.

In addition to the National League and American Assoc., there are now (1893) the Eastern, Western, Southern, New England, California, and Pacific Northwestern *Minor Leagues*; and *Interstate Leagues* in Illinois-Iowa, Michigan-Wisconsin, and North-South Carolina in addition to *State Leagues* in Penn., Tex., Mont., Neb., and N. J. All these sectional and minor leagues play under National League and Assoc. rules; the college assoc., however, play under their own independent code.

The rules of the game have been from time to time modified in minor details, and sometimes in points of great importance in the development of the game. The latest of these alterations, made in the revision of the games for the season of 1893, is a case in point, whereby, by reducing the area of the pitcher's box, the distance through which the pitcher has to throw the ball has been increased by five feet—a change likely to restore the game to equilibrium, bringing the fielders into more prominence and checking the tendency of the game to become too much of a duel between the pitcher and the batsman.

B. is a game in which 18 men take part. The field, or tract of land, upon which it is played, should be perfectly level, and at least 350 ft. wide by 500 long. There are four bases, 90 ft. apart, forming a perfect square, which is called the 'diamond.' The home base, or starting-point, is at right angles with the first and third bases, with the second base on a straight line from the home base, and exactly 127 ft. 4 in. distant, as is the first from the third base. The pitcher is placed in a square space of ground, marked off for him with lines, just 60 ft. away from the home base, and on a straight imaginary line with the home and second base. The catcher, when there are none of the opposing players on the bases, stands back from 75 to 80 ft. in the rear of the home base, and receives the ball on the bound; but on other occasions he comes up close to the batsman and places a wire mask over his face, and straps an air-pad over his chest and stomach, to guard against injuries

BASE-BALL.

from sharp foul tips. A player is stationed at each one of the three bases, and designated as the first, second and third baseman. There is another man, known as the short-stop

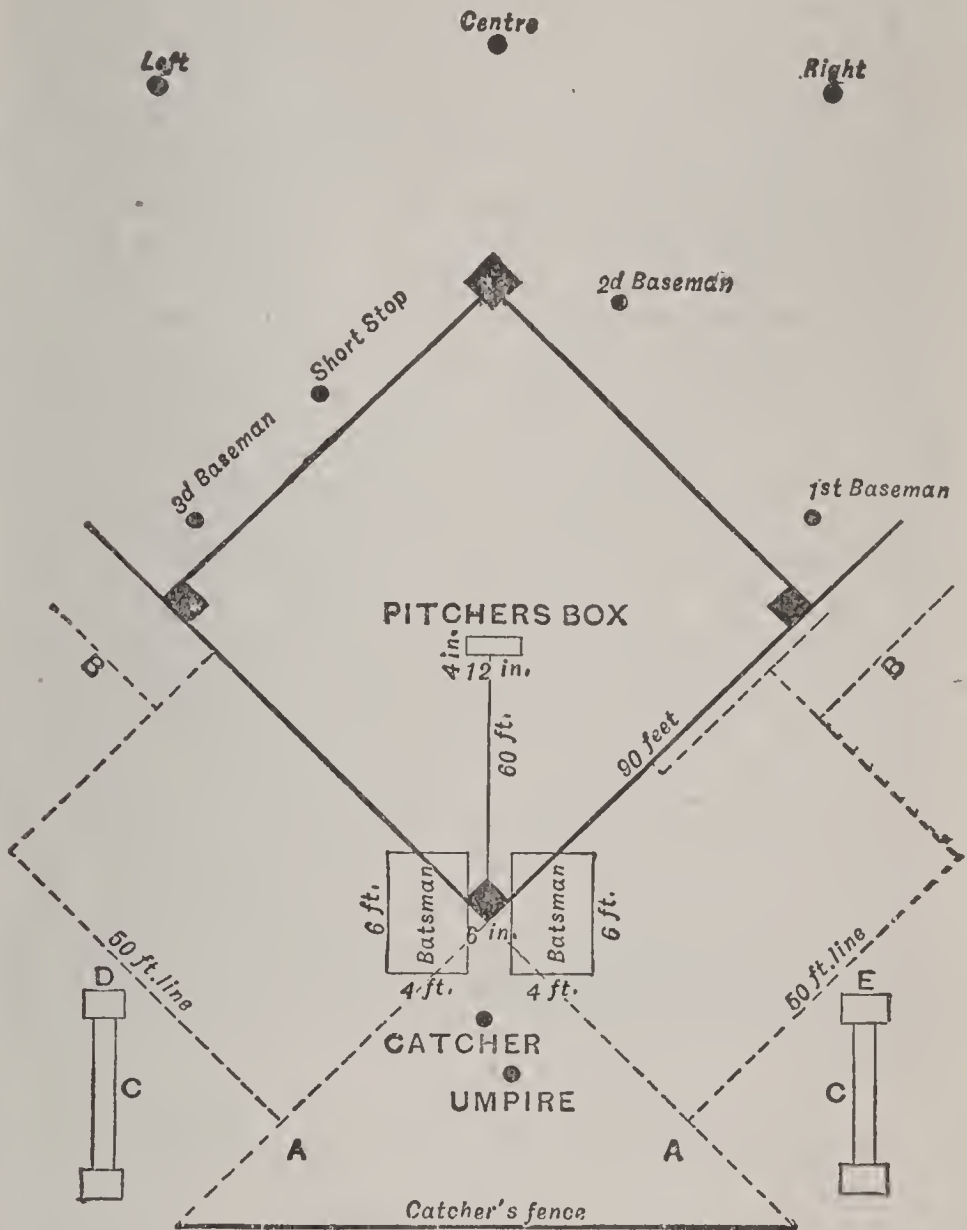


Diagram of Base-Ball field 1893.

stationed midway between second and third base, while the three men in the out-field are called the right, centre, and left-fielders. Chalk lines are drawn from the home base to first and third respectively, and extended to the boundaries of the field, or to such a point where a flag is stationed, and known as the foul flag. All balls hit within these lines are fair, and those which are not, are foul. The umpire is the sole judge on all questions during the progress of a game, and the foul lines are principally for his guidance in making his decisions on balls hit to the out-field. A ball that strikes fair ground in the infield and rolls into foul ground before it reaches first or third base, is foul, and if it strikes foul

BASE-BALL.

ground and rolls into fair ground before reaching either first or third bases, as the case may be, it is fair. All fair or foul balls caught on the fly, are out, and when three are out, all are out. The game consists of nine full innings, except that (a) If the side first at bat scores less runs in nine innings than the other side has scored in eight innings, the game shall then terminate; (b) If the side last at bat in the ninth inning scores the winning run before the third man is out, the game shall terminate. Besides putting the side out on fly-ball catches, they are also put out at first base on balls thrown to that point by any of the in or out-fielders before the batsman, who becomes a base-runner the instant he hits the ball, reaches that point. They can be put out also before they reach the other three bases. This, of course, lessens the chances of scoring, and forces free batting. The game is really one of great chance, which is the secret of its wide popularity. The same two nines might confront each other for 20 games in succession, and no two games would be alike, if the clubs were anywhere near equal in playing strength. A regulation ball and bat are used. The ball weighs from 5 to $5\frac{1}{4}$ ounces, avoirdupois, and measures from 9 to $9\frac{1}{4}$ in. in circumference. The bat is round, made of wood, not to exceed 42 in. in length, and does not exceed $2\frac{1}{2}$ in. in diameter in the thickest part. The game has been developed into such a scientific state that the average time for playing is only two hours, while many games are played in an hour and a half. While it requires nine innings to be played to complete a game, in case of rain or darkness any even inning after the fifth will constitute a game; but at least five full innings must be played. In case of a tie at the conclusion of the ninth inning, the game goes on until the even innings will show either one or the other of the two teams in the lead. As many as 24 innings have been played in a single game; and frequently 12, 15, and 16 innings.

BASEDOW—BASEDOW'S DISEASE.

BASEDOW, *bá-zê-do'*, JOHANN BERNHARD (properly Johann Berend Bassedau, or Bernhard von Nordalbingen, as he is often called): 1723, Sep. 8—1790, July 25; b. Hamburg, Ger., where his father was a peruke-maker. He attended the Johanneum there 1741–44, afterwards studied philosophy and theology in Leipsic, from which he went, 1746, as a private tutor to Holstein. In 1753, he was appointed a master in the acad. for young noblemen at Soröe. In 1761 he was removed from the Gymnasium at Altona on account of heterodox opinions. Rousseau's *Emile* awakened in him, in 1762, the thought of improving the method of education, and of reducing to practice Rousseau's maxims and those of Comenius. Contributions from princes and private persons, amounting to 15,000 thalers (about \$10,700), covered the cost of his *Elementarwerk*, which, after the most pompous announcements, appeared as an *Orbis Pictus*, with 100 copper-plates by Chodowiecki, and was translated into French and Latin. Therein the young receive a large number of representations of the actual world, whereby B. sought at once to delight the eyes, and to awaken a sentiment of cosmopolitanism, at which his whole method aimed. As a model school on this method, he established, 1774, the *Philanthropin* at Dessau, to which place he had been called 1771. His restlessness of disposition, and the quarrels in which he was involved, especially with his active but capricious coadjutor Wolke, caused him to leave the *Philanthropin*; but he proceeded with eager endeavors to give effect to his ideas by educational works, which, however, aimed more at popularity than solidity, until, after many changes of residence, he died at Magdeburg. His influence on the public mind of his age, particularly in Germany, was very great. He has been justly reproached with disparaging the ancients, a consequence chiefly of his own want of sound scholarship, and with a multitude of exaggerations, mistakes, and conceits; yet his numerous philosophical and educational works drew attention and interest to the neglected subject of education, and he awakened men's thoughts to weighty truths.

BASEDOW'S DISEASE: see EXOPHTHALMIC GOITRE.

BASEL.

BASEL, *bâzèl*, or **BA'SLE** (Fr. *Bâle*): city and canton of Switzerland. The canton was divided 1833 into two sovereign half-cantons, called *Basel-city* (Basel-stadt, French Basle-ville) and *Basel-country* (Basel-landschaft; French, Basle-campagne). The half-canton of Basel-city consists only of the city, with its precincts, and three villages on the right bank of the Rhine; the remainder of the canton forms the half-canton of Basel-country. The canton of B. is bounded by France and Baden, and by the cantons of Aargau, Soleure and Berne, and has, according to different estimates, from 170 to abt. 200 sq. m. Lying on the n. slope of the Jura, it is a country of hills and valleys. The mountains attain an elevation of from 2,000 to 3,000 ft. Chief rivers of B. are the Rhine (which flows through the n. part of the canton) and its tributaries, the Birz and Ergolz. The soil is fertile and well cultivated. The climate, except in elevated situations, is very mild. The inhabitants are chiefly employed in agriculture, the cultivation of fruit-trees and of the vine, cattle-husbandry, fishing, salt-works, the manufacture of ribbons (to the value of \$2,000,000 annually), paper, woollens, linens, and leather. The transit trade is considerable.

The city of B. arose out of the Roman fortified post of Basilia or Basiliiana, near Augusta Rauracorum, of which formerly more important place the village of Augst, near B. exhibits a few ruins. On the division of the Frank empire, the district of B. fell to Louis or Ludwig the German. The Emperor Henry I., in the earlier part of the 10th c., rebuilt the town, which had been destroyed. It then became a place of importance, and belonged for a time to Burgundy, but after 1032 formed part of the German empire. It became at an early period the seat of a bishop, who, from the 11th c., shared in the supreme power with the imperial governor, a number of noble families, and the burgesses. Amid many internal and external disturbances, the power of the nobility was gradually broken, that of the bishop restricted, and the authority of the burgesses extended. Surrounding towns were destroyed, or conquered, and purchased, with their territories, so that the city extended its dominion over a country district which until very recently was kept in a state of dependence and subjection. Involved in many feuds with the House of Hapsburg, B. closely allied itself to the Swiss confederacy; and after the peace between the Emperor Maximilian I. and the confederacy, B. formally joined it, 1501. From 1519 onwards, the writings of Luther were printed in B.; and at the end of 20 years from that time, the reform doctrine had become generally prevalent, the chapter of the cathedral had left the city, and the convents had been suppressed. After the union with Switzerland, the triumph of the burgess party became more complete, part of the nobility emigrated, and those who remained were placed upon the same level with the freemen of the municipal corporation. Orderly industry, economy, and an external severity of manners, became the characteristics of the citizens; but the peace of the city was not unfrequently disturbed by strifes consequent upon the

assertion of what was deemed undue authority by the magistrates. The government of the city, to which the whole canton was subject, was intrusted to a Great and a Little Council, under the presidency of alternate burgomasters and chief wardens of the guilds; but the Little Council, uniting legislative and judicial functions with the highest executive authority, became gradually preponderant. All parties in the city, however, remained always well combined against the country district; and persons belonging to the city were appointed to all offices, civil and ecclesiastical, while the depression of the country district was completed by the neglect of a proper provision for education. The resulting dissatisfaction repeatedly broke out in fruitless rebellion. Under the impulse of the French Revolution, equality of rights was conceded 1798; but in 1814, although the equality of rights remained apparently intact, the new constitution of the canton was so framed, and the representation so distributed, as virtually to make the city again supreme. The discontent of the country district became so great that, after unsuccessful attempts to obtain redress of grievances by petition, civil war broke out 1831, which did not cease till the troops of the Swiss Confederation took possession of the canton, and the diet recognized the separation of the city and the country district, as sovereign half-cantons, 1833. The constitutions of the two half-cantons are in most respects similar, and are framed on the basis of the old constitution, modified in accordance with the principle of universal suffrage. According to the census of 1880, the half-canton of Basel-city contained 65,101 inhabitants, of whom 44,236 were Protestants; and Basel-country, 59,271, of whom 46,670 were Protestants. By the federal constitution, proclaimed 1874, May 29, the half-canton of Basel-city sends two, and the half-canton of Basel-country three, members to the national council. The capital of Basel-country is Liestal. Since its separation from the city, more ample provision has been made for education, and there has been a rapid increase of material prosperity. Both Roman Catholic and Protestant clergy are paid by the state, and the parishes of the Reformed Church have received the right of choosing their own pastors.

B. is well-built and clean, but its appearance does not show it to be, as it is, the wealthiest city in Switzerland. Among its buildings are a cathedral, founded in the beginning of the 11th c., by the Emperor Henry II., and a bridge over the Rhine, built 1226. The Rhine divides the city into two parts—Great B., on the s. side, and Little B., on the n. B. is connected by railway with Strasburg on one side, and Berne, Lucerne, Zurich, etc., on the other. It has many benevolent and educational institutions, among which are an orphan asylum, and an institution for deaf mutes; a university (with 350 students in attendance in 1880), founded 1459, with a library of about 120,000 vols., and many MSS., a numismatological collection, a botanic garden, and a museum of natural history; the new museum, in which are several pictures of the younger Holbein, long resident in B. (some accounts say he was born here); a

public library of 70,000 vols. During the Reformation, the university, now little frequented, was a central point of religious life, and it has numbered among its professors men of great eminence in learning, including Erasmus, who died here in 1536, and the mathematicians Euler and Bernouilli, natives of Basel.

The city of B. was much more populous in the middle ages than now. In the 14th c. its population was greatly reduced by the plague or 'black death' (q.v.), which raged with terrible severity, and is sometimes termed the 'death of Basel.' Pop. (1885) 68,992; whole canton (1880) 124,372; (1901) city 111,009; canton (1900) 180,724.

BA'SEL, COUNCIL OF: memorable and important ecclesiastical assembly held in the city of Basel; summoned by Pope Martin V., and his successor Eugenius IV., in accordance with an announcement made at the Council of Constance; and opened 1431, Dec. 14, under the presidency of the Cardinal Legate Julian Cesarini of St. Angelo. The hall in which it met is still shown. It addressed itself to the reconciliation of the Hussites with the Rom. Cath. Church, and to the reform of abuses in the church itself. But the first attempt to conciliate the Hussites, whom an army of crusaders had in vain sought to subjugate, was met with resistance by the pope, who not only refused his sanction, but empowered the cardinal legate to dissolve the council. The council strongly repelled the pope's pretension of right to dissolve it, and proceeded with its business. His injunctions, that it should remove to Italy, were equally disregarded. It renewed the decree of the Council of Constance, asserting the right of a general council to exercise authority over the pope himself, and on his persevering to issue bulls for its dissolution, caused a formal process to be commenced against him, and cited him to appear at its bar. It assumed the papal powers, and exercised them in France and Germany, where its authority was acknowledged. It concluded a peace, in the name of the church, with the Calixtines, the most powerful section of the Hussites, by the Prague Compact of 1433, Nov. 20, granting them the use of the cup in the Lord's Supper. By this, the Emperor Sigismund was much helped in obtaining possession of Bohemia; and he in return sought to reconcile the council with Eugenius IV., who, being hard pressed by insurrections in the States of the Church, and afraid of losing his whole influence in France and Germany, solemnly ratified all its decrees, by a bull dated 1433, Dec. 15. Desirous, however, of limiting the papal prerogatives, the council restored to the chapters of cathedral and collegiate churches the free right of election to stalls and benefices, of which the pope had assumed the disposal; and with a view to the reformation of gross abuses, restricted the power of granting interdicts, and prohibited *annats* and other grievous exactions. It left the pope the right to dispose of those benefices only which belonged to the diocese of Rome, and prohibited the bestowal of reversions to ecclesiastical offices. It also appointed punishments for

certain immoralities in the clergy; and prohibited Festivals of Fools, and all the indeencies which had been commonly practiced in churches at Christmas. It adopted decrees concerning the election of popes, and for the regulation of the College of Cardinals.

Eugenius, exasperated to the utmost, complained loudly to all sovereign princes. At this time, a prospect was opened of the union of the distressed Greeks with the Church of Rome; and both the pope and the council endeavored to make use of this for the advancement of their own interests and influence. Both despatched galleys for the Greek deputies, but through the intrigues of his agents, the pope was successful, and brought the Greek deputies to Ferrara. The Abp. of Tarentum, a papal legate at B., circulated an ordinance in the name of the council, and sealed with its seal, recommending Udine or Florence as the place of conference. The ordinance was a forgery, and this proceeding put an end to forbearance on the part of the council, which, 1437, July 31, again cited the pope to its bar; and not only on his failing to appear, declared him contumacious, but on his opening an opposition council at Ferrara went so far, 1438, Jan. 24, as to decree his suspension from the functions of the popedom. His party, however, was so strong that this decree could not be carried into effect; and some of those who had been leading members of the council, the Cardinal Legate Julian himself, and the greater number of the Italians, left it and went over to his side. All the more resolutely did Cardinal Louis Allemand, Abp. of Arles, a man of great understanding, courage, and eloquence, now guide the proceedings of the council, which, 1439, May 16, declared the pope a heretic, for his obstinate disobedience of its decrees; and in the following session, formally deposed him for simony, perjury, and other offenses. On this occasion, the holy relics which were in B. were deposited in the places from which the Spanish and Italian members of the council had disappeared; and the sight of them produced much emotion, and reanimated the courage of the assembly, still consisting of 400 prelates, priests, and doctors, mostly French and German. The council, 1439, Nov. 17, notwithstanding the still further diminution of its numbers caused by the plague in B., elected Duke Amadeus of Savoy to be pope, who then lived as a hermit in Ripaglia, on the Lake of Geneva. He accordingly styled himself Felix V., but was recognized by only a few princes, cities, and universities. The Emperor Sigismund was dead, and even France and Germany, though they accepted the reforming decrees of the council, thought proper to remain neutral in the question regarding the popedom. The friendship of the Emperor Frederick III. strengthened the party of Eugenius; and the council gradually melted away, till, careful only for personal security, its members, after three years of inactivity, held its last session at B., 1443, May 16, and removed its seat to Lausanne. Here a few prelates still remained together under the presidency of Cardinal Allemand, till in 1449, after the death of Eugenius, and the resigna-

BASEL—BASE OF OPERATIONS.

tion of the anti-pope Felix, an amnesty was offered them by the new pope, Nicholas V., which they joyfully accepted. The B. reforming decrees are contained in no Rom. Cath. collection of decrees of councils, and are held invalid by the canonists of Rome; yet they are of authority in canon law in France and Germany, where they were included in pragmatic sanctions, although their application has been modified by more recent concordats.

BA'SEL, TREATY OF: name of two important treaties of peace, concluded at Basel, 1795, Apr. 5, and July 22, between the representatives of the French Republic, Prussia, and Spain, by which Prussia withdrew from the coalition against France, took under her protection all the states of northern Germany which should, like herself, relinquish the war in which the German empire was engaged, and also gave up to the victorious republic her possessions beyond the Rhine; while Spain gave up her portion of St. Domingo, and prepared the way for that alliance with France whose later consequences were so important.

BASELLA, *ba-sěl'la*: genus of plants, generally regarded as belonging to the nat. ord. *Chenopodiaceæ* (q.v.), but by some botanists as the type of a distinct order, *Basellaceæ*. The species are all tropical. *B. alba* and *B. rubra* have twining stems, are in common use as pot-herbs in the East Indies, and cultivated in China. In the neighborhood of Paris, they are raised on hot-beds, transplanted into warm borders, and furnish a substitute for spinach in summer. *B. rubra* yields a very rich purple dye. The great fleshy root of *B. tuberosa*, a South American species, also with a twining stem, is edible.

BASELLACEÆ, n. *ba-sěl-lā'sē-ē* [L.]: order of perigenous exogens, placed by Lindley in his Ficoid Alliance. It consists of plants like Ficoids, but with distinct sepals, no petals, the fruit enclosed in a membranous or succulent calyx, a single solitary carpel, and an erect seed. All or nearly all are tropical.

BASEMENT-MEMBRANE: thin lamella beneath epithelia of body canals, or beneath epidermis, iris, etc.

BASENET, n. *bās'ē-nēt*, or BASNET, n. *bās'nēt*, or BASINET [OF. *bacinet*, a helmet—from *bacin*, a basin]: an anciently a helmet or head-piece: see HELMET.

BASE OF OPERATIONS, in Military Maneuvers: some spot or line which the general of an army relies upon as a stronghold and magazine. An army cannot take with it all the food, forage, and ammunition for a long war; the consumption is enormous, and a constant supply is indispensable. Again, the sick and wounded cannot accompany the army through toilsome marches; the commander endeavors to send them back to some place of safety. Furthermore, fresh troops must have some spot from which they can safely advance through the enemy's country. To secure all these advantages, a *B. of O.* is necessary. It may be a port, a stretch of sea-coast, a river, a mountain-range, according to circumstances: but it must be such as to

BASHAN—BASHI-BAZOUKS.

serve as a magazine of supply, a place for retreat under disaster, and the end of a line of open communication extending to the spot occupied by the army. In the Italian war of 1859, the Austrian B. of O. was very fluctuating, owing in part to the disaffected state of the Lombard population around the great fortresses of Mantua, Peschiera, etc; indeed the only trustworthy base was the Eastern and Tyrolese Alps. The French and Sardinian base, in the same war, was virtually Genoa, and the line of country extending thence to the great stronghold of Alessandria.

BASHAN, *bá'shan*, or BATANÆA (*the Fruitful*): country in Palestine, stretching from Mount Hermon in the Anti-Libanus on the n. to the brook Jabbok on the s., bounded w. by the Jordan, with eastern limits not clearly defined. Ashtaroth and Edrei were its chief cities, and the residence of its kings during the Amoritish dynasty. The last of its Amorite rulers was Og, who with all his sons was killed by the Israelites under Moses, at the battle of Edrei; and the half tribe of Manasseh settled in the land. The men of B. were remarkable for their stature, its pastures for their richness, and its sheep and oxen for their size and fatness. B. belonged to the tetrarchy of Philip, and afterwards to that of Agrippa II. It is remarkable for its deserted cities, all of stone. See Porter's *Five years in Damascus* (Lond. 1855); *Giant Cities of Bashan, and Syria's Holy Places* (Lond. 1860).

BASHAW, n. *bă-shaw'*, now usually written PASHA [Ar. *basha*: Pers. *pasha*]: head, or master; a Turkish title of honor given to viceroys, provincial governors, generals, and other distinguished public men. The term B. also denotes a man of an arrogant and domineering disposition.

BASHEE, or BASHI, ISLANDS, *bá-shē'*: small cluster in the line between Luzon, chief of the Philippine chain, and Formosa; lat. and long. respectively 21° n. and 122° e. Politically, they are a dependency of the Philippines, having been colonized by the Spaniards, 1783. Physically, they form a link in the vast archipelago which, from Formosa to Sumatra inclusive, connects the s.e. of China with the w. of Malacca. They were discovered 1687 by Dampier, who called them the Bashi Islands, on account of the popularity among the islanders of an intoxicating liquor of that name. Pop. about 8,000.

BASHFUL, a. *băsh'ûl* [see ABASH]: very modest; shy; easily confused. BASH'FULLY, ad. *-lî*. BASH'FULNESS, n. modesty in excess; diffidence; shyness.

BASHI-BAZOUKS, n. plu. *băsh'î-bă-zûks'*: a kind of irregular troops in the Turkish army. Very few are Europeans; they are mostly Asiatics, from some of the pashalics in Asiatic Turkey. They are wild turbulent men, ready to enter the sultan's service under some leader whom they can understand, and still more ready to plunder whenever an opportunity offers. During the Russo-Turkish war of 1854, etc., they had many encounters with the enemy in that kind of irregular warfare which the Russians intrust

BASHKIRS—BASIL.

to Cossack horsemen; but the peaceful villagers had almost as much distrust of the B.-B. as of the Russians. When the British government resolved, 1855, to take into pay a Turkish contingent, to aid in the operations of the war, a corps of B.-B. was put in charge of an Indian officer, but the task of reducing them to discipline was not completed when the war ended. Their ferocity was exhibited in the Servian war, but most relentlessly in the massacre of Batak, where, 1876, May, under Achmet Agha, they slew over 1,000 defenseless Bulgarians, in a church in which they sought refuge.

BASH'KIRS: see **TURKS**.

BASIC, a. *bā'zīk* [see **BASE** 2]: in *lithology*, a term used to designate such igneous rocks as basalt, which contain only about 50 per cent. of silica; used in contradistinction to acidic. **BASICITY**, n. *bā-zīs'ī-tī*, the condition or state of the base or foundation of a thing; in *chem.*, the tendency of a base to combine with one or more equivalents of an acid.

BASIDIUM, n. *bā-sīd'ī-ūm*, **BASIDIA**, plu. *bā-sīd'ī-ā* [L. *basidiūm*, a little pedestal—from *basis*, a pedestal]: in some fungi, a cell bearing on its exterior one or more spores. **BASIDIOSPORE**, n. *bā-sīd'ī-ō-spōr* [Gr. *spora*, a spore or seed]: a spore borne upon a basidium. **BASID'IOSPOR'OUS**, a. *-spōr'ūs*, bearing spores upon a basidium.

BASIDOH, *bā-se-dō'*, or **BASSADORE'**: principal station for British ships in the Persian Gulf; at the west end of the island of Kishm.

BASIENTO, *bā-se-ēn'to*, or **BASENTO**, *bā-sēn'to*: river of Italy, rising in the Apennines, w. of Potenza, flows e.s.e. through the province of Basilicata to the Gulf of Taranto. Near its mouth are the remains of the once famous city of *Metapontum*, where Pythagoras died.

BASIFUGAL, a. *bā-sīf'ū-gāl* [L. *basis*, a foundation; *fugĭō*, I flee, I avoid]: in *bot.*, applied to veins in leaves, etc., which ramify from base to summit. **BASIPETAL**, a. *bā-sīp'ēt-āl* [L. *pĕto*, I seek]: seeking or ramifying from summit to base, as veins, commencing from above downwards in their development, as lobes.

BASIFY, v. *bā-sī-fī* [Eng. *base*, and L. *fĭō*, I am made]. to convert into a base. **BA'SIFYING**, imp. **BASIFIED**, pp. *bā-sī-fīd*. **BASIFIER**, n. *bā-sī-fī-ēr*, he or that which.

BASIL, n. *bāz'īl* [Sp. *bisel*, bevel-edge of a thing—from **BASE** 2]: an edge pared or sliced off; the slope of the edge of a tool. **V.** to grind or form the edge of a tool to an angle. **BAS'ILING**, imp. **BASILED**, pp. *bāz'īld*.

BASIL, n. *bāz'īl* [F. *basilic*; It. *basilico*, the basil—from Gr. *basil'ikōs*, royal—*lit.*, the royal herb], (*Oc'ymum*): genus of plants, nat. ord. *Labiatae* (q.v.). The species are all natives of the tropics, or of the warmer temperate parts of the world, and are generally characterized by a pleasant aromatic smell and taste. They are reckoned among *sweet herbs*.—**SWEET B.** (*O. Basilicum*) is an annual, native of the East Indies, about one foot high, with ovate or oblong leaves,

BASIL.

and flowers in whorls of six; long cultivated in Europe for culinary purposes, as a seasoning. It has also the reputation of being a palliative of the pains of childbirth.—BUSH B. (*O. minimum*), also a native of the East Indies, is culti-



Basil (*Ocimum Basilicum*).

vated for the same purpose and has the same qualities. Basil of the United States is the genus *Pycnanthemum*, Mountain Mint; flavor mint-like; 2 species n.; 4 s.; 3 n. and s.; 2 general, *P. pilosum* and *P. lanceolatum*—corolla whitish or purplish, lips purple-dotted; dry soils, hills and woods. B. Vinegar is made in the same manner as Mint Vinegar, by steeping the leaves in vinegar. It is used for seasoning, in winter, when the fresh plant cannot be obtained.

BASIL, n. *bāz'il* [possibly from an Oriental word meaning to strip]: the skin of a sheep tanned, used in bookbinding and for making slippers.

BASIL, *bā'sil*, surnamed **THE GREAT (SAINT BASIL)**: abt. 329–379, Jan. 1; b. Cæsarea, in Cappadocia: one of the most eminent and eloquent of the Greek Fathers. He studied under the heathen philosophers at Athens, and became an advocate in his native city, but afterwards founded a monastic society; was ordained a presbyter 362; and succeeded Eusebius as Bp. of Cæsarea, 370, in which office

BASIL I—BASILICA.

he continued till his death. He resolutely resisted invitations to the court of Julian the Apostate, with whom he had been intimate as a fellow-student at Athens, and displayed great constancy when the Emperor Valens began to persecute him, on account of his opposition to Arianism. He was engaged in most of the controversies of his time, but conducted controversy in a peaceful and generous manner. His rules of monastic life are still followed in the Greek and other oriental churches, in which he is highly honored as one of the greatest of saints. In the Rom. Cath. Church, also, they are followed in a few convents, styled of the order of *Basilians*. The influence of B. was greatly felt in the promotion of monasticism throughout the West as well as the East, and to him is ascribed the introduction of the three universal monastic vows of obedience, chastity, and poverty. The best editions of his works are that of the Benedictines (3 vols., Par. 1721-30, fol.), and that of the brothers Gaume (3 vols., Par. 1835-40, 8vo); but the authenticity of many of the moral and ascetic pieces is doubtful. His anniversary is celebrated, in the Greek Church, Jan. 1—the day of his death; in the Latin Church, June 14—the day of his ordination.

BA'SIL I., the Macedonian Emperor of the East: 813 (or 826)—886. His early life is differently related, but his biographers agree that he came to Constantinople when young, and was appointed chamberlain to the Emperor Michael, 861. Subsequently, the emperor made him his colleague in the sovereignty. B. now used his influence to restrain Michael from committing those excesses which rendered him hateful to the people; but when he found his remonstrances unavailing, he headed a conspiracy against him, the result of which was the assassination of the emperor, 867. His first care was to heal the wounds both of the church and the state. He replaced Ignatius upon the patriarchal throne, and dismissed Photius, whom, however, he re-established in his authority the year after. His valor made him the terror of the Saracens, from whom he reconquered Asia Minor. The prodigality of Michael had exhausted the public treasury; by a wise economy, B. refilled it. All extortioners, moreover, were sought out and punished. The profligate companions of the late monarch were condemned to disgorge one-half of the largesses which Michael had showered upon them. B. also entered into a treaty of alliance with the Russians of Kiew, to whom he sent missionaries to preach the gospel, and who, from that time, began to embrace Christianity, and acknowledge the authority of the Greek Church. He died from wounds which he received while hunting a stag. Several letters of his are extant, also a book full of wise advice addressed to his son.

BASILICA, n. *bă'zil'î-kă* [Gr. *basil'ikōs*, kingly—from *bās'ileus*, a king]: a royal or public hall where justice was administered; the middle vein of the arm; a magnificent church. BASILICON, n. *bă zil'î-kōn*, a yellow ointment, made of resin, wax, and lard or olive-oil. BASILIC, a. *bă-zil'îk*, or

BASILICA.

BASILICAL, a. *bă-zîl'î-kāl*, pertaining to a public or regal edifice; pertaining to the middle vein of the arm.

BASILICA, *ba-zîl'i-ka*: a code of laws of the Greeian empire, the compilation of which was begun in the reign of the Emperor Basil I., the Macedonian (d. 886)—from whom it is generally supposed to have derived its name; completed by his son Leo the Philosopher; and revised, 945, by order of Constantine Porphyrogenitus, son of Leo. There is some doubt whether the work has come down to us as completed by Leo, or as revised by Constantine, and unfortunately we do not possess the whole of the 60 books of which it originally consisted. It was very much an adaptation of the code of Justinian to altered circumstances, and is of great value for the interpretation of the *Corpus Juris*. The principal editions are that of Fabrott (7 vols. fol., Par. 1647), and the recent one of Heimbach (vols. 1-5, Leip. 1833-50), which includes portions discovered since Fabrott's time. The B. has been the subject of many commentaries.

BASILICA originally, probably the hall or court-room in which the king administered the laws made by himself and the chiefs who formed his council. When monarchy was abolished at Athens, the second of the magistrates who succeeded to the kingly power was called the Arehon-basileus, the first being styled the Arehon by pre-eminence; and it is as the court or hall (stoa) in which the Arehon-basileus administered justice, that the B. first appears in authentic history. But it was among the Romans that the B. attained its chief importance; and in addition to its original use as a court of justice, became a market-place, an exchange, a place of meeting for men of business generally. It was not till a comparatively late period, however, that a B. was erected at Rome, the first known being the B. Poreia, B. C. 182. From this period till the time of Constantine, they were constructed in great numbers. Some twenty are known to have existed in Rome and latterly, every provin-

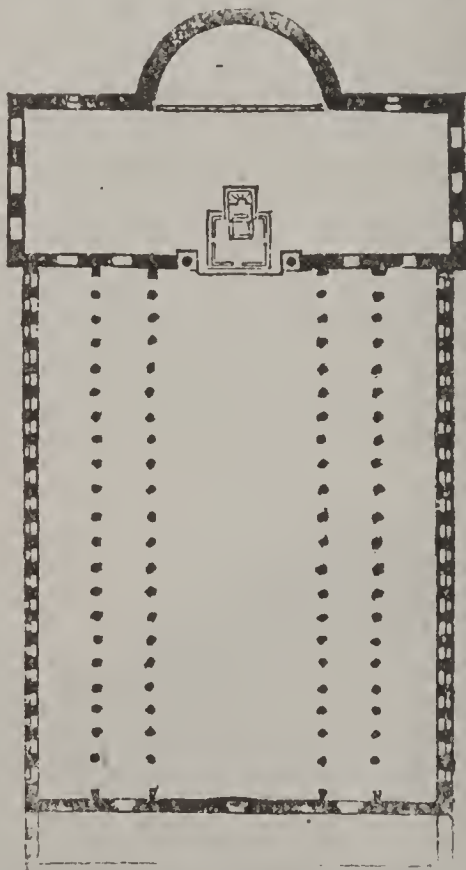


Section of Trajan's Basilica, Rome.

cial town, even those of small extent, had each its B., as that of Pompeii, now the most perfect example, still testifies. The most frequented part of the city was always selected for

BASILICA.

the site of a B. ; and as this was almost always the Forum, the words Forum and B. are occasionally used as synonymous by ancient writers. The earliest basilicas were entirely open to the external air. It was usual, for this reason, as well as for the convenience of those who might be compelled to frequent them in bad weather, to select for them a sheltered and convenient position. Latterly, an external wall was substituted for the peristyle of columns with which the original basilicas were surrounded; the external columns, if continued at all, being used only as a decoration, and confined generally to the vestibule. It was in this form that the B. suggested the idea of the Christian Church (see APSE); and the readiest mode of explaining the structure of the B. to a modern, is to imagine the process which was then performed reversed, and in place of converting the B. into a church, to convert the church into a basilica. This will be effected by simply removing the roof from the *nave*, the aisles remaining covered, and even being frequently furnished with galleries, as in Protestant churches. The judge's seat was generally in a circular portion of the building which protruded from its further end, in which the altar was afterwards placed (see APSE), the



Ground-plan of Basilica of St. Paul, Rome.

great entrance to the B. fronting it, as the western door of a cathedral fronts the high-altar. The space required by the pretor for his court was separated by a railing from the other portions of the building, which were devoted to the various purposes we have mentioned. It must not be supposed from this description, that the form of the B. was

BASILICATA—BASILICON.

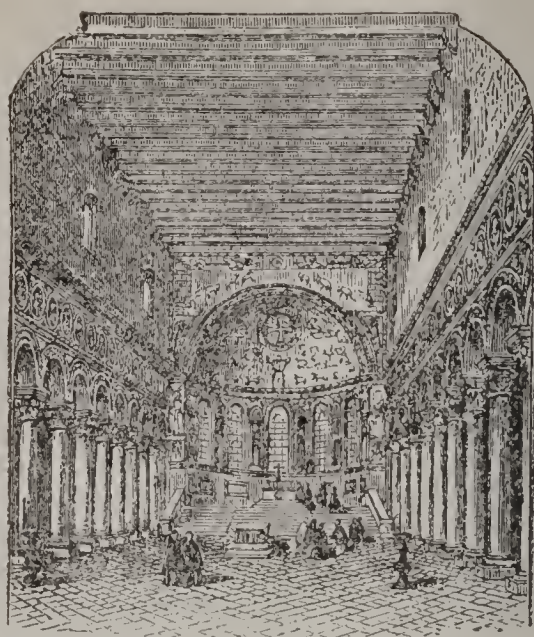
always the same. Sometimes there was no hemicycle or apse, as in the B. at Pompeii, in which case the tribunal was cut off from the nave; sometimes there were two, as in the B. of Trajan. Again, the B. was sometimes entered, not from the end, but from the sides, where the transepts of a modern church are situated; and at the end opposite that in which the tribunal was placed, there was often a row of small chambers, the uses of which are not accurately ascertained, and probably were not invariable. In the plan of the B. of Pompeii, there was an outside stair which led to the upper gallery, which in this case passed entirely round the building. The gallery was the place to which loiterers usually resorted for the purpose of watching the business proceedings below; and the one half of it is said to have been devoted to men, the other, to women. Of the vast size of some of these buildings, a conception may be formed from the accommodation which must have been required for the tribunal alone, where, in addition to the curule chair of the pretor, and space required by the suitors and their advocates, seats had to be provided for the *judices* or jurymen, who occasionally amounted to as many as 180.

Many of the principal churches in Italy, and particularly in Rome, are still called Basiliche.

The term B. was also applied in the middle ages to the large structures erected over the tombs of persons of distinction, probably from their resemblance to small churches; thus, the tomb of Edward the Confessor, in Westminster, is called a B. (see chronicle of the Mayors of London, quoted by Parker).

BASILICATA, *bá-se-le-ká'tá*, or **POTENZA**: province in the s. of the kingdom of Italy, includes nearly the same territory as ancient Lucania. Foggia and Avellino bound it on the n.; Bari and Lecce, on the n.e. and e.; the Gulf of Taranto and Cosenza, s.e. and e.; and Salerno and the Mediterranean, on the w.; area 4,000 sq.m. Pop. (1891) 538,707. cap. Potenza; other chief towns are Francavilla and Tursi. B. lies mainly on the e. side of the main ridge of the Apennines, between it and the Gulf of Taranto. The interior is wild and mountainous, and though there are some large forests in the province, the general aspect is bare and barren. Four considerable rivers—the Basiento, Brandano, Agri, and Sinno—flow through it from the w., in an e.s.e., direction, forming as many valleys, which slope gradually into an exceedingly fertile plain, varying in breadth from 4 to 10 m. Here corn is raised in abundance, also wine, hemp, tobacco, and liquorice. Swine, sheep, and goats are reared in the mountainous districts, and silk forms a product of the valleys. B. is greatly in need of good roads, and is subject to earthquakes.

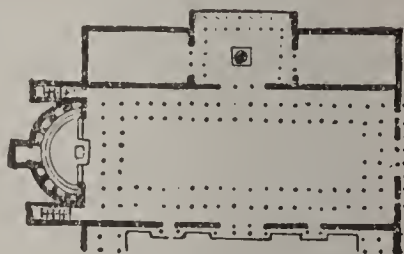
BASILICON, *ba-sil'i-kôn*: an ointment composed of yellow wax, black pitch, resin, and olive oil. Hence it was called *Unguentum Tetrpharmacum* [*tetra pharmaka*, four drugs]. The resin, wax, and pitch are melted together over a slow fire; the oil is then added, and the mixture, while hot, strained through linen. The straining is directed



Basilica of San Apollinare, Ravenna.



Wild Basil.



Plan of Trajan's Basilica.



Section of Trajan's Basilica, Rome.

in consequence of the impurities which resin often contains. B. ointment, or resin cerate, as it is sometimes called, is much used as a gently stimulant application to blistered surfaces, indolent ulcers, burns, scalds, and chilblains.

BASIL'ICON DO'RON [Gr. royal gift]: celebrated prose work of King James VI. of Scotland, written for the instruction of his son, Prince Henry, a short time previous to his accession to the English throne. It consists of three books. The first treats 'Of a King's Christian Duty towards God;' the second, 'Of a King's Duty in his Office;' and the third, 'Of a King's Behavior in Indifferent Things.' It was first published 1599; afterwards in London 1603, 8vo; and translated into Latin by Henry Peacham, who presented it, richly illuminated, to the prince. This Latin version was published in London 1604, 8vo. A French edition appeared at Paris 1603, 8vo, and another 1604, 16mo. Like the royal author's famous work on *Demonology*, and his *Counterblast to Tobacco*, the B. D. is now only a literary curiosity.

BASILIDANS, n. *ba-sil'i-danz*: the followers of Basilides (q.v.).

BASILIDES, *bas-i-lī'dēz*: an Alexandrian Gnostic, who lived during the reigns of Trajan, Hadrian, and Antoninus Pius. Regarding his life, little is known. He is said to have taught in Antioch; afterwards in Persia; finally, in Egypt, where he is supposed to have died shortly before the middle of the 2d c. He was a disciple of one Glaucias, not elsewhere mentioned in history, but whom he terms an interpreter of St. Peter, and from whom he alleges that he had received the esoteric faith of that apostle. B. probably considered himself a Christian, but his absurd and fantastic speculations resemble the doctrines of Zoroaster, and some points of the Indian philosophy. According to the system of B., there are two eternal and independent principles—the one, good; the other, evil. Whatever exists, emanates from these. The good principle—i.e., the Supreme God or Father—constitutes, with his seven perfections, viz., the Mind, the Word, the Understanding, Power, Excellencies, Princes, and Angels, the blessed ogdoad (combination of eight). These seven perfections, or powers, in which the Supreme God is reflected, are in their turn themselves reflected, but more feebly, in seven other angelic powers, which emanate from them; and so on through the whole circle of emanations, which amount to 365, the mystic number so often inscribed on the symbolic stones in the Gnostic schools (see ABRAXAS STONES). Each of these angelic powers governs a world. There are, consequently, 365 worlds, to each of which B. gave a name. The head of the 365th, or lowest world, rules the material universe, which, with other angels, he also created. He is the God or Jehovah of the Old Testament, and when the earth was divided among the rulers of the material universe, the Jewish nation fell to the share of himself, who was the prince of the lowest class of angels. But wishing to absorb all power himself, he strove against the other angels, and to make them subject to his 'chosen people,' the result of which was war, strife, division

in the world, together with the loss of the true religion, to restore which the Supreme God sent the first Æon (*Nous*, or Intelligence), who united himself to the man Jesus at his baptism, and so taught men that the destiny of their rational spirit was to return into God. This *Nous*, however (who was the true Christ), did not really suffer crucifixion, for, changing forms with Simon of Cyrene, he stood by *laughing* while Simon suffered, and afterwards returned to heaven. B. also taught the doctrine of a purgatorial transmigration of souls in the case of the wicked. His disciples (Basilidians) were numerous in Egypt, Syria, Italy, and even in Gaul, where they continued till the 4th c. They were accused by their enemies of Antinomianism and 'magic,' but whether on good grounds or not, cannot be ascertained.

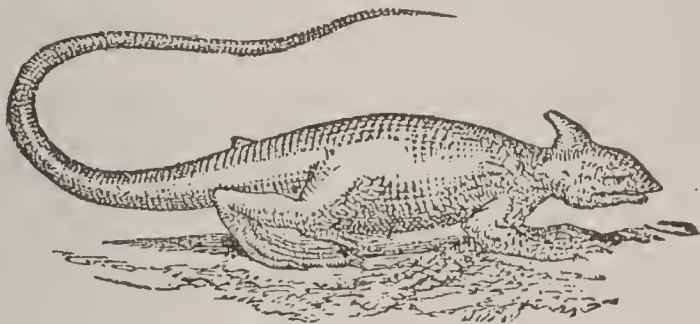
BASILISK, n. *băz'î-lîsk* [Gr. *basilis'kos*; L. *basilîs'cus*—from Gr. *bās'ileus*, a king]: the cockatrice; a fabulous serpent having a white spot on its head resembling a royal crown; a kind of lizard, something like an iguana.

BASILISK, *băz'î-lîsk*: according to ancient and mediæval authors, a terrible creature; now reckoned entirely fabulous—the fables concerning it being so many and so monstrous, that it is vain to seek for any foundation of truth, or to inquire if any of them originally had reference to any particular creature whatever. The ancients, as Dioscorides, Galen, and Pliny, describe it as a serpent; in the middle ages, it was generally represented as more of a lizard, but provided with eight instead of four feet. It appears to have been at last identified with the Cockatrice (q.v.) which was believed to be generated in a very wonderful manner, being produced from an egg laid by an extremely old cock, and hatched by a toad; for which reason we find the B. sometimes figured with something like a cock's head. The B. was the king of dragons and serpents, all of which left their prey to it whenever it approached; whence its name, *basiliscus* (Gr.) diminutive of *basileus*, a king—sometimes exactly translated into Latin by *regulus*. It had some prominences on its head, which, when as figured in books, assumed the appearance of a crown. It inhabited the deserts of Africa, and, indeed, could inhabit only a desert, for its breath burned up all vegetation; the flesh fell from bones of any animal with which it came in contact, and its very look was fatal to life; but brave men could venture into cautious contest with it by the use of a mirror, which reflected back its deadly glance upon itself.—These things are mentioned on account of the allusions to them by poets and other writers.—The blood of the B. was, of course, extremely valuable to magicians. It occupies an important place in some of the legends of the saints, and Pope Leo IV. is said to have delivered Rome from a B. whose breath caused a deadly pestilence.

The word B., and its equivalent *regulus*, are sometimes used in the Latin Vulgate, where the authorized English version of the Old Testament sometimes has *adder*, and sometimes *cockatrice*; but no trace of any of the marvels concerning the B. is to be found there.

BASILISK—BASIN.

BAS'ILISK, in modern Zoology: genus of saurian reptiles of the family of *Iguanidæ* (see **IGUANA**), differing from the iguanas in the want of the dewlap or appendage of skin under the throat, and of the series of pores on the inside of each thigh; also in having a continuous elevated crest along the back and tail, capable of being erected or depressed at pleasure, and apparently intended to aid the motions of the animal in water like the corresponding fin of a fish.—The basilisks are remarkably adapted both for climbing trees and for swimming. Their feet are not webbed, their toes rather long. They are perfectly harmless creatures, very active and lively, and it is difficult to say why they should have received the name of the fabulous monster of antiquity, unless because their appearance is disagreeable, and perhaps because an appendage at the back of the head may have been thought to represent the crown of the dragon king. This appendage is most conspicuously developed in the Mitred or Hooded B. (*B. mitratus*), native of the tropical parts of America, and consists of a hood or membranous bag,



Hooded Basilisk.

capable of being dilated with air, and then about the size of a pullet's egg, which is supposed, notwithstanding its extremely different situation, to have a use somewhat analogous to that of the air-bladder of fishes. The mitred B. is from 25 to 30 inches long, including the long and very tapering tail.—Another and larger species, of a generally greenish color (*B. Amboinensis*), inhabits the islands of the Indian archipelago, and is much used there for food. Its flesh is said to be very white and tender. It is often seen on the branches of trees above water, into which it drops when alarmed.

BASILOSAURUS see **ZEUGLON**.

BASIN, n. *bā'sn* [F. *bassin*; OF. *bacin*, a basin—from mid. L. *bacchīnon*, a vessel: Gael. *bas*, the palm of the hand with the fingers bent over it; *bac*, a hollow. It. *bacino*]. a circular hollow vessel for containing water, etc., a pond; a bay; a dock; the district of country drained by a river: a concave piece of metal, in shape resembling a basin on which glass-grinders form their convex glasses; a round shell or case of iron placed over a furnace, in which hatters mold a hat into form. **BASIN-SHAPED**, a. **BASINED**, a. *bā'snd*, enclosed in a basin; in *geol.*, any dipping or disposition of strata towards a common centre or axis; denoting the depressions and receptacles of seas or lakes.

BASIN—BASKERVILLE.

BA'SIN, in Geography: region drained by a river, or lake. The *B.* of a river is the whole tract of country drained by that river, and is, of course, more or less concave. The line or boundary which separates one river-basin from another is called the water-shed. By tracing these water-sheds, the whole of a country or continent may be divided into a number of distinct basins; and this is one of the most instructive elements in the physical geography of a country. The *B.* of a lake or sea is made up of the basins of all the rivers that flow into it.

BA'SIN, in Geology: a depression in the strata, in which beds of a later age have been deposited. Thus, the London *B.*, consisting of tertiary sands and clays, occupies a hollow in the chalk, which is bounded by the North Downs on the s. and by the chalk-hills of Berks, Wilts, Bucks, and Herts on the n. The term has also been applied to synclinal depressions of strata, produced by the elevation or depression of all the strata contained in the *B.*, as the coal-*B.* of south Wales.

BASINERVED, a. *bā'sī-něrvd* [L. *basis*; Eng. *nerved*]: in *bot.*, of *leaves*, having the nerves, or 'ribs,' all springing from the base.

BA'SINGSTOKE: town in the n. of Hampshire, Eng. 46 m. w. s. w. of London. It is a place of much activity, being at the junction of five main roads to London from the s. and w. of England. The country around is fertile and wooded. The chief trade is in corn, malt, coal, and timber. Near the town is a tract of 108 acres, on which every householder has the right of pasturage. There is also not far from the town, an ancient camp, surrounded by an irregular oval embankment, 1,100 yards in circumference, with an entrance on the e. and w. sides. Basing House Castle, belonging to the Marquis of Winchester, long withstood the forces of the Commonwealth, but Cromwell at last took it by storm, and burned it to the ground, 1645. Pop. (1881) 5,574; (1891) 7,960.

BASIROSTRAL, a. *bā-sī-rōs'tral* [L. *basis*; *rostralis*, pertaining to the rostrum or bill of a bird]: situated at the base of the bill.

BASIS: see under **BASE** 2.

BASISOLUTE, a. *bā-sīs'o-lūt* [L. *basis*, a base; *solutus*, unbound, loose, free—pp. of *solvo*, to loosen, separate, disengage]: in *bot.*, of *leaves*, extended downwards beyond the point at which theoretically they arise.

BASI-SPHENOID, a. *bā'zī-*, and **BASI-OCCIPITAL**, a.: denoting two bones in the base of the vertebral skull.

BASK, v. *bāsk* [Icel. *baka*, to warm: Dut. *bakern*, to bask, as in the sun: connected with **BATH**]: to bathe in sun-heat or fire-heat; to lie at ease enjoying the heat of the sun or of a fire: to be prosperous under benign influence. **BASK'ING**, imp. **BASKED**, pp. *bāskt*. **BASKING-SHARK**, the largest of the sharks, often 30 to 40 feet in length; also called the **SUN-FISH**.

BASKERVILLE *bas'ker-vīl* **JOHN**: 1706–75; b. Wolver-

BASKET—BASNAGE DE BEAUVAL.

ley, Worcestershire, Eng.: celebrated printer and type founder. He became a writing-master in Birmingham, and afterwards carried on the business of japanning there with great success. He began about 1750 to make laborious and costly experiments in letter-founding, and succeeded in making types scarcely yet excelled. He printed an edition of Virgil at Birmingham, 1756, followed by other Latin classics, a few English and Italian authors, and a New Testament (Oxf. 1763), much admired as specimens of printing, although not otherwise possessing high merit. His services to the art of printing met with little encouragement and no requital. He was a man of obliging disposition, but of a gloomy temperament, and condemned all religious service as superstition. Baskerville editions of works are now prized by persons of taste.

BASKET, *n.* *bās'kēt* [W. *basged*—from *basg*, a netting, a plaiting, as of twigs or splinters: L. *bascauda*—a word of British origin, a bread-basket]: an article of domestic use, made of osier-twigs, or any pliable substance; sometimes the materials are gold, silver, iron, glass, etc. Baskets have been in use from very early ages. The Israelites were commanded (Deut. xxvi. 2) to offer unto the Lord, as soon as they came into possession of the land of Canaan, 'the first of all the fruit of the earth' in a *basket*. The baskets used on such occasions by the rich Jews were made of gold and silver, and were returned to the offerers; but those used by the majority of the people were of barked willow, and were retained by the priests. The ancient Britons were remarkably expert in the manufacture of baskets, which were much prized by the Romans for their neatness and elegance. The process of B.-making is very simple, and appears to be well known among the rudest peoples—even among the aborigines of Van Diemen's Land.

BASKET BALL: an indoor game played upon a circumscribed space on a floor, usually with five players on a side, the rules as to interference, playing out of bounds, etc., being adapted from those of foot-ball. A basket is placed at each end of the playing space at a height of about 10 feet. The ball, which is round and somewhat lighter than a foot-ball, is passed from one player to another by throwing or striking with the hands only, the ultimate object being to lodge it in the opponents' basket the action scoring one point.

BASNAGE DE BEAUVAL, *ba-nāzh' dē bō-rāl'*, **JACQUES** 1653, Aug. 8—1723, Sep. 22; b. Rouen; son of Henry, an able advocate of a distinguished French family, mostly supporters of the Protestant cause. Having studied theology at Geneva and Sedan, he became pastor of the reformed church in Rouen (1676). That church being interdicted in 1685, B. obtained leave to retire to Holland, where he finally settled as stipendiary minister of the Walloon Church in the Hague, having gained the friendship of the Grand Pensionary Heinsius. Here while zealously discharging his religious duties, he was called upon to take an active part in state affairs, par-

BASON—BASQUE PROVINCES.

ticularly in negotiating the defensive alliance concluded between France, England, and the states-general, 1717, Feb. 14. Amid all these duties and distractions, B. cultivated literature with ardor, and was no less distinguished for his extensive learning than for the polish of his manners and the integrity of his character.

His chief works, which have been frequently laid under contribution without being named, are *La Communion Sainte* (Rott. 1688), a work approved even by Rom. Catholics, and often reprinted; *Traité de la Conscience* (Amst. 1696, 2 vols.); *Histoire de l'Eglise* (Rott. 1699, 2 vols. fol.) *Histoire des Juifs* (Rott. 1706, 5 vols.), one of B.'s best productions, and translated into English by Th. Taylor (Lond. 1708); *Dissertation Historique sur les Duels et les Ordres de Chevalerie* (Amst. 1720).

BASON, n.: an incorrect spelling of BASIN, which see.

BASQUE, n. *băsk* [F.—from L. *Vascōnēs*]: the language spoken in the departments of the Pyrenees, in France; also in Navarre, Biscaya, Guipuzcoa, and Alava, in Spain, etc. BASQUISH, a. *băs'kîsh*, of or pertaining to Biscay or its inhabitants.

BASQUE PROVINCES, *băsk*: district of Spain, lat. 42° 25'–43° 28' n., long. 1° 44'–3° 25' w.; comprising the three provinces of Biscay, Guipuzcoa, and Alava—the Ancient *Cantabria*. They form a sort of triangle, the base of which is the Bay of Biscay on the n., and the apex the town of Logrono in the s; the boundary-lines of Navarre on the e., and Santander and Burgos on the w., forming the two sides. Area of the three provinces (without Navarre, often reckoned with them), 2,782 sq. m. The surface of the B. P. is very mountainous, particularly that of Alava, which is everywhere cut up into deep narrow valleys by offsets from the main chain of mountains. The rivers of Biscay and Guipuzcoa, none of which are important, empty after a short course into the Bay of Biscay; those of Alava flow down the opposite slopes into the Ebro, which carries their waters to the Mediterranean. The climate in all the three provinces is, on the whole, mild and salubrious. The general aspect of the country is very picturesque, the hills in most cases being covered with wood to the very summit. The principal trees are oak, beech, and chestnut. The fruit of the chestnut forms an article both of diet and of export. The soil in the valleys and plains, though not very rich, has been rendered productive by the energy and labor of the people. But science and machinery have done little to assist nature and manual exertion. A spade, or prong-fork, is the chief mechanical aid of the Basque peasant. The farms are small, usually only about four or five acres, and rarely more than can be managed by the farmer and his family. The roads and agriculture of these provinces contrast very favorably with those of Spain generally. Products are wheat, barley, maize, flax, hemp, etc.; the wheat, however, ripening only in the most favored localities. Iron is in abundance; also

copper and tin, marble porphyry, and jasper. The fisheries on the coast are productive.

The Basque race is not confined to the B. P., or to the s. side of the Pyrenees. The greater part of the inhabitants of Navarre (q.v.) are pure Basques. And on the French side of the Pyrenees, three cantons of the department Basses Pyrénées (pop. of 145,000), are inhabited by Basques, who, though they retain their own tongue, have not so fully preserved the characteristics of the race as their Spanish brethren.

The Spanish Basques are a simple, brave, and independent people, willing to undergo any hardships rather than surrender their mountain-freedom. None of their many invaders were ever able to effectually subdue or expel them. The B. P. retained till 1876 a separate constitution, guaranteeing them many political and fiscal privileges not possessed by the rest of Spain (see FUEROS). But on the suppression of the Carlist insurrection, which had all along its stronghold in the B. P. and in Navarre, the old immunities were abolished. The Basques are even prouder than Spaniards, and the mere fact of being born in their territory secures the privilege of 'universal nobility.' *Euscal-dunac* is the name the Basques give themselves; their country they call *Euscaleria*; and their language, which is peculiarly their own, *Euscara*. The language, of which there are several mutually unintelligible dialects, cannot be classed with any Aryan or Semitic tongues, but has points in common with Mongol, American, and African languages. The Basques are probably the descendants of the ancient Iberi, who occupied Spain and s. France—and possibly a much wider area in very old times (see EUSKARIAN). See Blade, *L'Origine des Basques* (1870); Michel, *Le Pays Basque*; Vinson, *Les Basques et le Pays Basque* (1882). The Basques are fond of music, and on Sunday they indulge in singing, dancing, and single-stick. Pop. (1877) 450,699; (1888) 510,419; (1900) about 600,000.

BAS-RELIEF': see ALTO-RILIEVO.

BAS-RIIN: a former dept. of France, now included in the German territory of ALSACE-LORRAINE: see ALSACE.

BASS, n. *bās*, BASSES, n. plu. *bās'ēs* [F. *basse*, low—from It. *basso*, low, deep]: the lowest part in a harmonized musical composition: ADJ. low; deep; grave BASSIST, n. *bās'ist*, in *music*, a singer of bass. BASS-CLEF, *bās-klēf*, the character placed at the beginning of the staff containing the bass part of a musical composition. BASS-SINGER, one who sings the deepest or lowest part in music. See BASE, in Music.

BASS, n. *bās* [Dut. *bast*, bark or peel: Dan. *baste*, to bind: W. *basg*, a plaiting]: a mat made of bast; a door-mat; a hassock or cushion for kneeling on in church.

BASS, or BASSE, n. *bās* [AS. *bærs*; Dut. *baars*, a perch]: (*Labrax*): genus of sea-fishes of the Perch (q.v) family, distinguished from the true perches (*Perea*) by having the tongue covered with small teeth. The species are found on the shores of Europe and America. The only British

BASS—BASSANO.

one is the Common B. (*L. lupus*), which in its fins, scales, etc., much resembles a perch, but has a more elongated form. It is a voracious fish, and was called by the Romans *lupus* (wolf).

The sea-bass have been constituted a family *Serranidæ*, though 'the most typical among the Percoid fishes.' One feature is the anal spines, three, instead of less as in the perch family restricted. The Striped B., or Rock-fish, Nova Scotia to La. (*Roccus lineatus*), and the White B. (*R. chrysops*) of the Great Lakes and the upper Miss. valley—the latter with several dusky lengthwise stripes instead of 7 to 9 blackish—have the dorsal fins separate; but in the Yellow B. (*Morone interrupta*, referring to broken stripes below and behind) of the lower Mississippi, the dorsals are joined at base. Here comes in the White Perch (*M. Americana*) of the Atlantic coast, ascending streams. The Black Sea-bass (*Centropristis striatus*) has the dorsal fin continuous. All are about 1 ft. long, except the Striped B., which attains 3–5 ft., and is one of the best food-fishes. The Small-mouthed Black B. (*Micropterus dolomieu*) and the Large-mouthed (*M. salmoides*), both of the United States generally, belong to the Sun-fish family, *Centrarchidæ*, having 4–10 anal spines, and the false-gills small and hidden. The former is a very gamy fish.

BASS, or **BASSWOOD**: see **LIME**, or **LINDEN**.

BASS, *bās*, **MICHAEL THOMAS**: 1799–1884; b. Burton-on-Trent. Eng.: brewer, head of the great brewing firm of Bass & Co. He was member of parliament for Derby, 1848–83, in the Liberal interest. He expended \$500,000 in building and endowing a parish church in Burton, and \$185,000 for a free library and public swimming baths and park for the town of Derby.

BASSANO, *bās-sá'no*: town of Italy, province of Vicenza, 19 m. n.e. of the city of Vicenza, on the Brenta; on a rising-ground in an extensive plain. It has considerable trade in wine, olives, silk, leather, etc., as well as a great printing establishment. It has 30 churches, and a number of fine palaces. One of its gates, the work of Palladio, is greatly admired. It is famous for a victory of Bonaparte over the Austrian field-marshal, Wurmser, 1796, Sept. 8, and was the scene of other battles between the French and Austrians in the wars of that period. Pop. abt. 15,000.

BASSA'NO (properly, **GIACOMO DA PONTE**): 1510–92, b. Bassano, in the n. of Italy: artist of great eminence educated in the principles of his art first by his father, Francesco, himself a painter of merit, he became at Venice a pupil of Bonifazio Veneziano. Here a study of the designs of Parmegiano, Titian, Tintoretto, and others, kindled a rich and emulative enthusiasm in B; and his earlier works display a loftier genius, as regards both conception and execution, than at a later period. His principal effort, of this higher epoch, is a fresco on the front of the house of the Michelli family. It represents Samson destroying the Philistines; the figure of the mighty Israelite being considered not unworthy of Michael Angelo. After his father's death, he returned to Bassano. where he practiced a simpler

BASSE CHANTANTE—BASSES.

style of art. From this time, however, dates his celebrity. He may even be said to have founded a school, whose peculiarity was the delineation of common things, markets, fairs, country inns, farm-yards, etc. He had a passion for introducing cattle into his pictures, even under the most inappropriate circumstances. The special merits of this lower style, into which B. finally lapsed, are its vigorous and picturesque coloring, and its accurate imitation of nature. B.'s landscapes, however, betray a comparative ignorance of perspective. Occasionally, during his later years, B. showed that his early love of the sublime was not wholly extinguished, by painting several altar-pieces, which have a noble grandeur of execution, such as the *Entombing of Christ*, in the church of St. Maria, Padua; a *Nativity*, now in the Louvre, Paris; *St. Roche interceding with the Virgin for a People infected with the Plague*, at Vicenza; *The Wise Men's Offering*, and the *Seizure of Christ in the Garden*. His rural pictures are numerous in the Italian galleries and in English collections. B. also painted heads of several of his contemporaries, Tasso, Ariosto, etc., and was in high favor with the Emperor Rudolph II., for whom he executed several works. He left four sons, all painters, but not marked by originality.

BASSE-CHANTANTE, *bás-shǎng-tǎnt*, in Music: the higher of the two basses in a score, partaking of more melody and performed by the violoncello

BASSE CONTRAINTE, *bás-kong-trangt*, in Music: a French term, meaning a bass melody of a few bars repeated throughout the piece, while the other parts vary.

BASSEIN, *bás-sān'*: city in British Burmah, cap. of a dist.; on the left bank of the Bassein river, one of the mouths of the Irrawaddy; lat. $16^{\circ} 45'$ n, long. $94^{\circ} 50'$ e. Though 90 m. from the sea, yet it is easily and safely accessible to the largest ships. In a military view B. is important, as it completely commands the navigation of the stream. It was captured by the British 1852. Pop. (1890) 19,577.

The dist. of B. in the recently constituted division of Irrawaddy has 7,047 sq. m.; pop. (1890) 316,883.

BASSEIN: city in the province of Bombay, on the island of B.; lat. of the island, $19^{\circ} 20'$ – $19^{\circ} 28'$ n., long. $72^{\circ} 48'$ – $72^{\circ} 54'$ e. It appears the mere wreck of former grandeur, having been found by Bp. Heber, 1825, with many churches and convents, to be altogether uninhabited and desolate. In 1584, it was ceded to the Portuguese; in 1765, after a possession of 231 years, it was wrested from them by the Mahrattas; in 1780, it surrendered to the British, after a regular siege of twelve days. The island, which contains about 35 sq. m., is separated from the continent by a narrow channel, which the Portuguese valued as a shelter for shipping. Historically, B. is of some interest, having been promised, though never delivered, as part of the dowry of Charles II.'s Portuguese consort. Pop. 10,357.

BASSES: two ledges of rocks s.e. of Ceylon, distin-

guished as *Great* and *Little*—the former group more to the s.w., the latter more to the n.e.; n. lat. $6^{\circ} 11'$ – $6^{\circ} 26'$, in e. long. $81^{\circ} 40'$ – $81^{\circ} 59'$. Their importance arises merely from their position in a great thoroughfare of traffic.

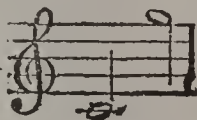
BASSET, n. *bās'sēt* [see BASIL 1]: a miner's term for the outcrop or surface edge of any inclined stratum. V. to incline in a direction toward the surface of the earth, as a stratum or seam of coal. BAS'ETING, imp.: N. the rise of a vein of coal to the surface of the earth; the cropping out of coal in the direction contrary to its dip. BAS'ETED, pp.: spelt also with *tt*.

BASSET, n. *bās'sēt* [F. *bassette*]: a game at cards invented at Venice: a kind of wind instrument like a clarionet.

BASSE-TERRE, *bās-tür'*: French term, equivalent to the English *Lowlands*, or rather, *Lowland*, appropriately applied to several localities in the West Indies.—1. The capital of St. Kitt's on the west coast, lat. $17^{\circ} 17'$, n., long. $62^{\circ} 42'$ w.: it is a low, hot, dusty place, standing at the outlet of a lovely valley of the same name. Its trade, as the port of the island, is considerable. The designation of the valley and town is a memorial of the former occupation of the half of St. Kitt's by the French. Pop. abt. 9,000.—2. The cap. of Guadaloupe, giving its name to the larger of the two islets into which Guadaloupe is divided by an arm of the sea, known as Salt river. B. stands on the s.w. coast, lat. 16° n., long. $61^{\circ} 44'$ w., having nothing worthy of the name of harbor, but merely a roadstead. Pop. abt. 9,500.—3. The chief town of Marie Galante, a dependency of Guadaloupe, which is about 12 m. to the n.w.: otherwise ambitiously called Grand Bourg.

BASSET HORN, *bās'sēt-horn* (corno di bassetto), richest and softest of all wind instruments, invented in Passau, 1770, improved by Lotz in Presburg, 1872. It is similar to a clarionet in tone and fingering, its compass is two and a

half octaves, the notes written for it being from



but the instrument sounds a fifth lower than the notes are written.

BASSETTO, n. *bās-sēt'tō* [It.]: a small bass viol.

BASSIA, *bās'sī-a*: genus of plants of the nat. ord. *Sapotaceæ* (q.v.). The species are trees, tropical or subtropical, the flowers of which are remarkable for their fleshy corolla, and for the abundance of oil or butyraceous fat which the seeds contain, and which is used for many purposes. The fruit has a pulpy rind, and 3 or 4 one-seeded cells. The ovary has 8 cells; but some are always abortive. The BUTTER TREE, described by Mungo Park as growing in the interior of Africa, in the country of Bambarra, has been supposed to belong to this genus, and named *B. Parkii*. According to the eminent botanist Robert Brown, however, the seed of the butter-tree, as figured by Park, scarcely belongs to the genus *B.*, but rather to the nearly



The Mythical Basilisk.



Basket-hilt.



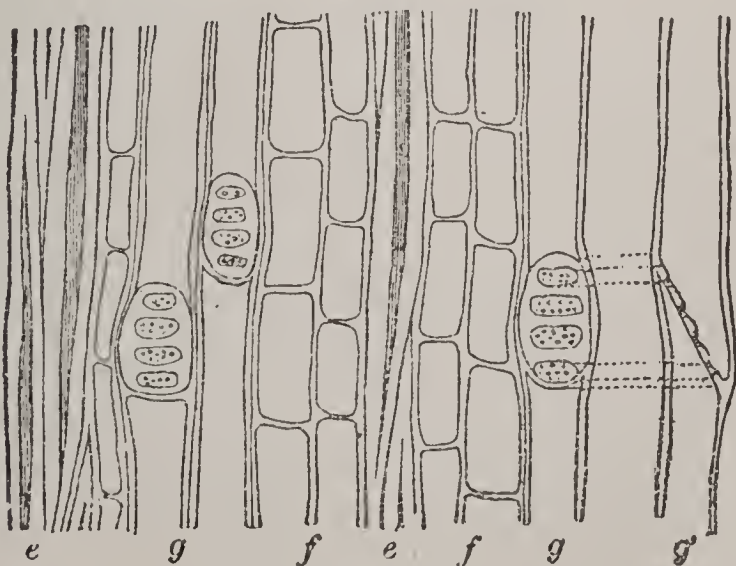
Bas-relief, from the Elgin Marbles.



Basset-horn.



Bassoon.



e, Bast fibres; *f*, Cells of soft bast; *g*, Vessel of soft bast, with four perforate sieve-plates seen on the surface of an oblique septum; *g*, Section through septum and sieve-plates.

allied genus *Vitellaria* or *Lucuma*. It produces the *Galam Butter*, also called *Shea Butter* (i. e., Tree Butter), which is highly valued, and is an important article of commerce in the interior of Africa. The seeds of the fruit, which resembles an olive, are dried in the sun, or in a peculiar kind of oven, and the kernels are then boiled in water, in order to obtain the butter from them, which not only keeps for a year without salt, but is also whiter, more solid, and more pleasant to the taste than butter of cows' milk. This butter is used as both food and medicine. The MADHUA, MAHWA, or MAHOWA Tree of the East Indies (*B. latifolia*), is described as resembling a good oak in size, and is a valuable timber-tree. It is found in the mountainous parts of the Circars, Bahar, Bengal, etc. Its flowers are eaten raw, and a kind of arrack or spirit is distilled from them. The seeds yield, by expression, a considerable quantity of a concrete greenish-yellow oil, used for lamps, and occasionally for frying articles of food.—The Indian BUTTER-TREE, or PHULWARA or FULWA Tree (*B. butyracea*), is found in some mountainous parts of India, and attains a height of 50 ft. Its timber is light and of no value. The leaves are 6–12 inches long. The fruit is the size of a pigeon's egg, and although eaten, is not much esteemed; but from the seed, a concrete oil or butter is obtained, by expression, of a delicate white color, much valued for medicinal uses, and as an unguent.—The seeds of the ILLUPIE-TREE, or Indian OIL-TREE (*B. longifolia*), native of Coromandel, yield a large quantity of oil, which is used for lamps, for soap-making, and in cookery. The flowers are much esteemed for eating; and the wood is almost as hard and durable as teak.

BASSIM, *bās'im*: town of India, dist. of B., province of Berar. Pop. abt 10,000.

BAS'SINET, n. *bās'sī-nēt* [from *basin*]: steel cap like a helmet.

BASSINETTE, n. *bās'sī-nēt'* [F.]: a wicker basket, with a covering or hood over one end, in which young children are placed as in a cradle.

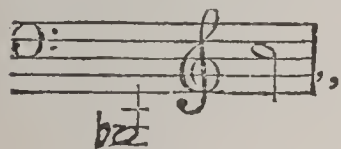
BASSO-CONTINUO, *bās'sō cōn-tīn-ū'ō* [It. *basso*, low, deep; *continuo*, continual]: continued bass; a bass part with the corresponding chords indicated by figures set above or below the notes; hence called also '*figured bass*.' BASSORIPPIENO, n. *bās'sō-rē-pē-ā'nō* [It. *basso*; *ripieno*, full, filled]: the bases of the grand chorus, which comes in only occasionally.

BASSOMPIERRE, *bā-sōn-pe-är'*, FRANÇOIS DE, Marshal of France: 1579–1646; b. Harouel, in Lorraine. Belonging to one of the oldest French families, he came, at the age of 20, to the French court, where he gained the favor of Henry IV. After the murder of Henry IV., he attached himself to the party of the queen, who appointed him col. of the Swiss Guards; but on the murder of Concini, he sought to establish himself in the favor of the young king, and when the quarrel broke out between mother and son, he particularly contributed to the overthrow of the former. He was raised to the rank of Marshal of France 1622; was sent on em-

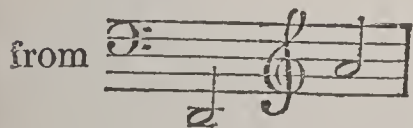
bassies to Spain, Switzerland, and England; was actively employed in the siege of La Rochelle; took the pass of Susa by storm, 1629: and commanded for a little while the troops raised in Languedoc against the Huguenots. He became, however, an object of suspicion and dislike to Richelieu, who caused him to be cast into the Bastile, 1631, Feb., from which he was not liberated until the death of Richelieu, 1643. He was an accomplished courtier, extravagant, and excessively addicted to gallantries. At the time of his arrest, he destroyed 6,000 love-letters. His *Mémoires* (2 vols., Cologne, 1665; 4 vols., Amst. 1723), written in the Bastile, are rendered interesting by their spirited style.

BASSOON, n. *bäs-sôn'* [F. *basson*—from It. *bassone*—from *basso*, low or deep]: in *music*, a bass wind-instrument, consisting of a very long tube and a reed for the admission of the wind: made of maple-wood or plane-tree. **BASSOON'IST**, n. a player on.

The *bassoon* is an Italian invention; its Italian name *fagotto*, meaning *a bundle*, probably from its being made in different pieces laid one against the other. The French call it *Basson de hautbois*; the Germans retain its Italian name. Its invention is attributed to Canonicus Afranio, in Ferrara, 1539. In the middle of the 16th c., it had already reached great perfection. Sigmund Schnitzer, in Nürnberg, was a celebrated maker. The B. consists of a bored-out tube of wood in several pieces, fixed together alongside each other, so as to bring the holes and keys within the reach of the fingers of each hand. The B. has, in general, not less than 8 holes and 10 keys. In the narrow end of the wooden tube is fixed a small tapering brass tube in the form of an S., on the end of which is placed the reed for producing the tone. The compass of the B. is from



but the best tones are those



from . The lowest C sharp, and B

natural, are wanting. The notes for the B. are written on the bass clef for the lower part, and on the tenor clef for the higher. The best keys for the B. are E flat, B flat, F, C, G, D, and A; the other keys are difficult. It is scarcely known as a solo instrument, though there is some music for it as such; but it bears an important part in the orchestra. The double B. (*contra-fagotto*) is an octave lower. B. is also the name of an organ-stop, the pipes of which are made to imitate the tones of the instrument.

BASSORA, *bäs'so-râ*, or **BUSSORA**, or **BASRAH**: town of Asiatic Turkey, pashalic of Bagdad; on the w. bank of the Euphrates, here called the Shat-el-Arab, about midway between the mouth of the Tigris and the Persian Gulf, from

BASSORA GUM—BASS ROCK.

which it is 70 m. distant. Lat. $30^{\circ} 30'$ n., long. $47^{\circ} 34'$ e. There are many gardens within the walls of the city, and many plantations of roses around it, but it is very dirty. The river, navigable up to B. for ships of 500 tons, is there divided into a number of channels, and by evaporation and frequent over-flowing, makes the climate very unhealthful. The people are for the most part poor Arabs and Persians; the officials and military alone are Turks. Commerce is in the hands of Armenians. Most of the houses are low huts, built of unburned bricks. An extensive trade is carried on in the exchange of the productions of Turkey and Persia with those of India, also in European goods, particularly articles of British manufacture. Among the exports are strong and beautiful horses, and dates which are grown in great abundance. Caravans travel to Persia, and also by Bagdad and Aleppo to Constantinople. It has steam communication with Bombay and Bagdad. To guard against the incursions of the Arabs, a wall of about 94 m. in length has been erected in the neighboring desert, at all the gates of which a watch is maintained. B. was founded in 636 by the Caliph Omar, and soon became one of the most famous and opulent cities of the East. The possession of it has been the subject of many contests between the Turks and the Persians. It is a place of great note in the history of Arabic literature. Pop., once 150,000; (1888) abt. 40,000.

BASSORA GUM: a whitish or yellowish-opaque substance resembling gum-arabic, but differing from it by being mostly insoluble in water. Its source has not been satisfactorily ascertained.

BASSO-RILIEVO: see ALTO-RILIEVO.

BASSORIN, n. *bās'sō-rìn* [first discovered in *bas'sora gum*: probably name adopted from *Bassora*, near Persian Gulf]: a substance obtained by treating a gum-resin successively with ether, alcohol, and water; a kind of gum insoluble in water, abundant in linseed, quince-seed, and many roots; gum-tragacanth.

BASS-RELIEF, n. *bās'rē-lēf* [It. *basso*, low; *rilevare*, to raise up again]: sculptured figures which do not stand far out from the surface; when they stand further out they are said to be in ALTO-RILIEVO. MEZZO-RELIEVO is a middle or demi-relief. It. BASSO-RELIEVO, *bās'sō-rē-lē'vō*, and F. BAS-RELIEF, *bá'rē-lēf*, are used in same sense as BASS-RELIEF. See ALTO-RILIEVO.

BASS ROCK: remarkable island-rock near the mouth of the Firth of Forth, about 2 m. from Canty Bay, Haddingtonshire, opposite the ruined castle of Tantallon. It is composed of hard granular greenstone or clinkstone, and is about a mile in circumference, nearly round, and 313 ft. high. It is inaccessible on all sides except the south-west, where it shelves down to the water, and there the landing is difficult, and almost impossible, when there is any swell. On the w., n., and e., the precipices rise perpendicularly out of the sea, to a great elevation. These are the abode of immense numbers of solan geese (it is estimated that 10,000

BASS ROCK.

-15,000 of these fowls resort here annually) and other aquatic birds, which give to the surface of the precipices a snowy appearance in the distance. A cavern traverses the rock from w. to e., accessible at low tide. There is a spring on the island, and a few sheep are pastured on it, the mutton of which is much prized. How early the Bass was



Bass Rock.

tenanted, is doubtful; but there is a tradition to the effect that St Baldred resided on it as early as the 7th c. It is also not very certainly known when the Bass was first fortified, but it formed a retreat for the son of Robert III., afterwards James I. of Scotland, before his nineteen years' captivity in England. James VI. visited the B. 1581, and was anxious to obtain it for state purposes; but its owner, 'Lauder of the Bass,' refused to part with it. The Registers of the Church of Scotland were sent to the B., 1651, for preservation from Cromwell; but the Protector forced their surrender in the following year. In 1671, Charles II. purchased the rock for £4,000, and within its dreary dungeons many of the most eminent of the Covenanters were confined during that and the following reign. It is a noticeable fact, that the Bass was the last spot in the British Islands which held out for the Stuarts. A mere handful of adventurers in the Jacobite interest, 24 in number, had the address to capture the island, and to retain it in name of King James, from 1691, June, till 1694, April, against all the forces which the government of William III. sent against them; at last, the spirited little garrison surrendered on honorable terms, and only by reason of failing provisions: see *Pictorial History of England*, vol. iv. p. 16, new ed. In 1701 the fortifications were demolished by order of William III. Five years afterwards, the Bass passed into the possession of Sir Hew Dalrymple, to whose lineal descendant it now belongs. The king of the Belgians (then Prince Leopold) visited the rock 1819, and, three years afterwards, George IV., passing it on his voyage to Scotland, was honored with a royal salute from some guns then on it. It has also been visited by the

BASS'S STRAIT—BAST.

Prince of Wales. The B. is let to a 'keeper,' who pays a considerable sum for it annually, the rent being made up by young geese, which are used as food; by eggs, feathers, and oil; also by fees exacted from visitors to the rock. There is an interesting volume on the B., historical, geological, and botanical, the joint production of Dr. M'Oric, Jun. Hugh Milner, and Professors Fleming and Balfour.

BASS'S STRAIT: a wide ocean passage separating Tasmania from Australia. It contains many islands, chiefly in its s. section, and is greatly beset by coral-reefs. It runs almost due e. and w., has an average breadth of about 140 m. and is nearly bisected by the parallel of 40°.

B. S. deservedly bears the name of its explorer who, without having been professionally a seaman, is entitled to a very high place among maritime discoverers. After having made shorter excursions from Port Jackson, in a mere wherry of 8 ft. in length, Mr. Surgeon Bass resolved to settle, in a whaling-boat, the question as to the connection or separation of New Holland and Tasmania. In his frail craft, he penetrated as far as Western Port, near the entrance of Port Phillip, where, from the trending of the land and the swell of the sea, he inferred that he had probably reached the open ocean. He did not rest contented, however, until, in a tiny bark of 25 tons, he actually circumnavigated Tasmania. The discovery, so deliberately prosecuted, and so satisfactorily completed, was soon fertile of results; for in 1802, only four years after the exploration of Bass, Port Phillip was entered; in 1804, Tasmania was colonized; and now the strait is the highway for an annual trade of more than a million sterling between Victoria and Tasmania—a trade which has very recently received an additional impetus from the laying of a telegraphic cable across Bass's Strait.

BASSUS, n. *bās'sūs* [L. *Bassus*, a proper name]: genus of hymenopterous insects, belonging to the family *Braconidæ*. They have long narrow bodies, and frequent umbelliferous flowers.

BAST, n. *bäst* [Dut. and Dan. *bast*, bark, peat: Sw. *basta*, to bind], (proper spelling of BASS, a mat). called *Inner Bark*, *Liber*, or *Endophlœum* (see BARK): the fibrous inferior layer of the bark in the stems of exogenous plants; the *Bast-tissue*, particularly conspicuous in exogenous trees, as a peculiar substance interposed between the true bark and the wood. It consists in great part of sap-vessels (laticiferous vessels (see LATEX and SAP) lying close together, and assuming the appearance of tough fibres. In a fresh state, it has generally a whitish color; and it is often composed of several layers, to which, however, the collective name of B.-layer is often applied. The uses of this part of plants in the arts are very numerous; the fibres of hemp, flax, jute, etc., are nothing else than bast. The name B.; however, is more commonly applied to the inner bark of trees, and is originally Russian, designating the inner bark of the lime-tree (q.v.) or linden-tree, which is employed for making a coarse kind of ropes, mats well known

as B.-mats, and a kind of shoes much worn by the Russian peasantry. The trees are cut when full of sap in spring. For B. to be plaited into shoes, young stems of about three years old are preferred; and it is said that two or three are required to make a single pair of shoes. Trees of six or eight years old are cut down for the better kind of mats, exported in large quantities from Russia, particularly from the port of Archangel, much used for packing furniture, for covering tender plants in gardens, supplying strands with which plants are tied, etc. The trees from which the B. is taken are generally burned for charcoal. After the bark is dried, its layers are easily separated by steeping in water. The finest layers are the inner.—The manufacture of B.-mats is nearly confined to Russia and Sweden. Not fewer than 3,500,000 are annually exported from Russia, and from 500,000 to 800,000 are annually imported into Britain. Lime-tree B. is used in the s. of Europe for making hats. The name B.-hat is, however, very often given to a hat made of willow-wood planed off in thin ribbons, and plaited in the same manner as straw hats. The inner bark of *Grewia didyma*, a tree of the same nat. ord. with the lime-tree, is used for making ropes in the Himalaya Mountains.

BASTA, impera. *bās'tă* [It.]: in *music*, enough; stop—used by the leader of the band.

BASTARD, n. *bās'tèrd* [OF. *bastard*; OE. *baste*, fornication: Gael. *baos*, or *baois*, lust—from OF. *bast*, a pack-saddle]: a child born out of wedlock; anything spurious: ADJ. spurious; not genuine; illegitimate; false; applied to metallic ores containing a very small percentage of metal, or to an impure mineral—as bastard-ironstone, bastard-limestone. BAS'TARDISM, n. *-dīzm*, the state of being a bastard. BASTARDIZE, v. *bās'tèr-dīz'*, to prove to be a bastard; to reduce to the condition of a bastard. BAS'TARDIZING, imp. BAS'TARDIZED, pp. *-dīzd*. BAS'TARDLY, a. or ad. *-lī*. BASTARDY, n. *bās'tèr-dī*, state of being illegitimate. BASTARD BAR, in *Heraldry*, the half of the scarp; in popular speech often called *Bar Sinister* (q.v.): see also GOBONY.

BASTARD EIGNÉ: name given in English law-books to an eldest son illegitimate by birth, but whose father and mother were subsequently married, and had other children born in wedlock. See BASTARDS AND BASTARDY.

BAS'TARDS AND BAS'TARDY: terms applied to persons of illegitimate birth. Bastards, as described by Blackstone, are such children as are not born either in lawful wedlock, or within a competent time after its determination. Under the common law in Blackstone's day this was an adequate definition, though, under changes in laws since, this definition fails to include children born in wedlock yet not children of the mother's husband. The Scotch lawyers, true to their peculiar law of marriage, define a bastard as a child born of a woman, who was not married to the father at the time of conception, and who was never thereafter married to him. It was at one time the law of England, when divorces *a mensa et thoro* were adjudged by the ecclesiastical

BASTARD-WING—BASTIA.

courts, that if the wife had children during the legal separation occasioned by the former kind of divorce, such children were *primâ facie* bastards—for the law presumed the parties to live conformably to the sentence of separation. But in modern times, the presumption has changed, and now always favors legitimacy.

In the United States, by the civil law and statute law of many of the states, a subsequent marriage of the parents legitimates children born prior thereto. It is thus in the following states: Alabama, Georgia, Illinois, Indiana, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Mississippi, Missouri, Ohio, Pennsylvania, Vermont, and Virginia, the provisions varying somewhat, but not materially, in different states. A child is a bastard if born during coverture under such circumstances as to make it impossible that the husband of his mother can be his father; but a strong moral impossibility, or such improbability as to be beyond a reasonable doubt, is also held sufficient. A child is likewise a B. if born beyond a competent time after the coverture has determined. The principal right which a bastard has is that of maintenance at the hands of his parents, which may be secured by the public officers who would be charged with the support of the child, or in some cases, by the mother. In many of the states, by statute, bastards can inherit from and transmit to their mothers real and personal estate under some modifications.

See LEGITIMACY: SEPARATION: DIVORCE: MARRIAGE: INHERITANCE: FEE-SIMPLE: SUCCESSION: ULTIMUS HÆRES: VAGRANTS: and SEMIPLENA PROBATIO.

BASTARD-WING, *n.*: three or four quill-like feathers in front of large quills at the wrist-joint, in birds.

BASTE, *v.* *bāst* [*F. baston* or *bâton*, a stick: *Icel. beysta*, to beat: *Sw. bösta*, to thump: *Gael. baist*, to immerse]: to beat with a stick; to moisten meat with fat while roasting, to hinder it from burning. **BA'STING**, *imp.* **BASTED**, *pp.* *bā'stēd*. **BA'STER**, *n.* one who.

BASTE, *v.* *bāst* [*It. basta*, a long stitch: *Sp. bastear*, to sew slightly: *F. batir*; *OF. bastir*, to stitch]: to sew with long stitches to keep the pieces of a garment in shape while it is being permanently sewed. **BA'STING**, *imp.* **BA'STED**, *pp.*

BASTIA: former cap. of Corsica, picturesquely situated on the slope of a mountain, rising from the sea in the form of an amphitheatre, in the n.e. part of the island; lat. 42° 43' n., long. 9° 27' e. The streets are narrow and crooked. It has a harbor for small vessels, defended by a mole, at the mouth of which is a rock resembling a lion couchant, and designated 'Il Leone.' There is considerable trade in leather, skins, wine, oil, figs, and pulse; and many stilettos and daggers are manufactured. Until recently, the printing-presses of B. were actively employed in the production of Italian publications that would not have been permitted to appear in that country itself. B. was founded 1383 by the Genoese Leonel Lomellino, and was the seat of the Genoese government for 400 years. When Corsica was

BASTIAT—BASTIDE.

divided into two departments, B. was made the capital of one; but when both were made into one in 1811, the seat of government was transferred to Ajaccio. Pop. (1891) 23,397.

BASTIAT, *bâs-te-â'*, FRÉDÉRIC: 1801, June 29–1850, Dec. 24; b. Bayonne, France; son of a merchant. He entered the commercial house of one of his uncles, at Bayonne, and employed his leisure hours in the study of political economy. Circumstances called him into Spain and Portugal in 1840, where he availed himself of the opportunity to study the customs and institutions of the two countries. In 1844 he published, in the *Journal des Économistes*, an article 'On the Influence of French and English Tariffs on the Respective Futures of the two Peoples.' It contained in germ B.'s theory of political economy; and from that moment, he took his place as a decided opponent of the system of protective tariffs. Subsequently, in the same journal, he combated the economic fallacies of Socialism and the rights of labor. During a visit to England, he made the acquaintance of Cobden, and on his return to France, he translated (1845) the speeches of the free-traders, which he published with an introductory preface, entitled *Cobden and the League, or the English Agitation in Favor of Free Trade*, in which he gathered up into one solid mass the inconveniences of the protective system. B. now went to reside in Paris, where he became sec. of the societies, and chief editor of the journal, advocating the principles of free trade. After the revolution of 1848, he was elected successively a member of the constituent and legislative assemblies. In 1850, he came forward as the antagonist of the Socialist writer, Proudhon. Suffering from pulmonary disease, he repaired to Italy for change of climate, but died at Rome.

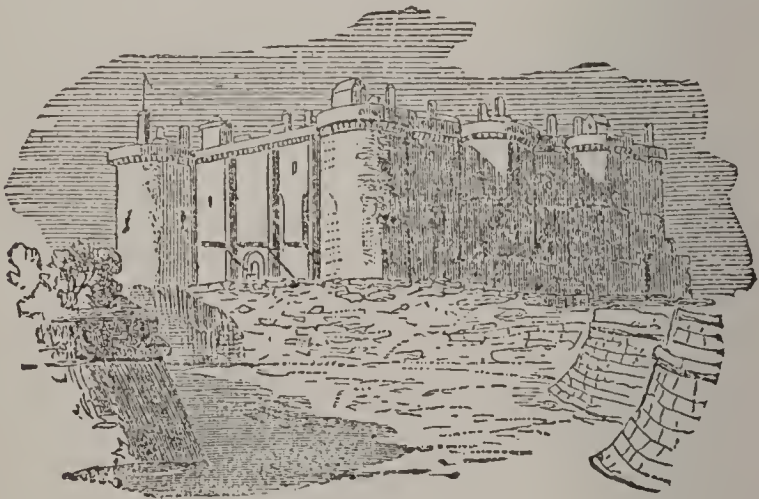
Besides the writings mentioned B. published *Sophismes Économiques—Propriété et Loi, Justice et Fraternité—Protectionisme et Communisme, Harmonies Économiques*, and several other important tractates, all of which exhibit extensive knowledge of the subjects discussed, convincing logic, and a power of sprightly and biting satire. The *Harmonies Économiques* was translated into English by Stirling (1869). See Bondurand's *F. B.* (1879). B's principles are now probably prevalent in France.

BASTIDE, *bâs-têd'*, JULES: 1800–79, March 3; b. Paris: French journalist and politician, minister of foreign affairs in 1848, and member of the constituent assembly. In 1821, he became one of the first members of the French Carbonari; and after the July revolution, he was conspicuous among the writers of the radical opposition. On the reconstitution of the National Guard, B. was elected commandant-in-chief of the legion of artillery, in which the republicans were grouped, and took part in two insurrectionary movements, for the second of which—the *émeute* at Paris, 1832, June 5, he was condemned to death, but escaped to London. Pardoned 1834, he returned to Paris, and wrote political articles for the columns of the *National*, but regarding the Church of Rome as the religious synonym of republicanism, he could not heartily sympathize with the tone of that news-

BASTILE.

paper on religious topics, and in 1847 he founded the *Revue Nationale*, in which he advocated his peculiar opinions. During the revolution of 1848, he was a supporter of General Cavaignac, and an opponent of Socialism. In 1858, he published *La République Française et l'Italie en 1848*; and in 1859, *Guerres de Religion en France*.

BASTILE, n. *bās-tēl'* [F. *bastille*—from *bastir*, to build]: a castle or prison; a fortress defended by towers or bastions; in *OE.*, a temporary wooden tower, used in naval and military warfare. The famous prison of state, known as the Bastile in Paris, was originally the castle of Paris, and was built by order of Charles V., between 1370 and 1383, by Hugo Aubriot, Prévôt or Provost of Paris, at the Porte St. Antoine, as a defense against the English. Afterwards, when it came to be used as a state-prison, it was provided, during the 16th and 17th centuries, with vast bulwarks and ditches. On each of its longer sides the B. had four towers, of five stories each, over which there ran a gallery armed with cannon. It was partly in these towers, and partly in cellars under the level of the ground, that the prisons were situated. The unfortunate inmates of these abodes were so effectually removed from the world without as often to be entirely forgotten, and in some cases it was found impossible to discover either their origin or the cause of their incarceration. The B. was capable of containing 70 to 80 prisoners, a



The Bastile.

number frequently reached during the reigns of Louis XIV and Louis XV. Though small compared to the number which an ordinary prison contains, these numbers were considerable, when we reflect that they rarely consisted of persons of the lower ranks, or such as were guilty of actual crimes, but of those who were sacrificed to political despotism, court intrigue, ecclesiastical tyranny, or had fallen victims to family quarrels—and were lodged here in virtue of *lettres de cachet* (q.v.)—noblemen, authors, savans, priests, and publishers. On 1789, July 14, the fortress was surrounded by an armed mob, which the reactionary policy of the court had driven into fury, and to the number of which every moment added. The garrison consisted of 82 old

soldiers and 32 Swiss. The negotiations which were entered into with the governor led to no other result than the removal of the cannon pointed on the Faubourg St. Antoine, which by no means contented the exasperated multitude. Some cut the chains of the first drawbridge, and a contest took place, in which one of the besieged and 150 of the people were killed, or severely wounded; but the arrival of a portion of the troops which had already joined the people with four field-pieces, turned the fortune of the conflict in favor of the besiegers. Delaunay, the governor—who had been prevented by one of his officers, when on the point of blowing the fortress into the air—permitted the second drawbridge to be lowered, and the people rushed in, killing Delaunay himself and several of his officers. The destruction of the B. commenced on the following day, amid the thunder of cannon, and the pealing of the *Te Deum*. This event, in itself apparently of no great moment, leading only to the release of three unknown prisoners—one of whom had been its tenant for thirty years—and four forgers, and in which it is said only the 654 persons whose names now appear on the column in the Place de la Bastille, took part, nevertheless finally broke the spirit of 'the court-party, and changed the current of events in France.

BASTINADO, v. *băst'tî-nă'dō*, or BASTINADE, v. *băst'tî-năd'* [Sp. *bastonada*, a blow with a stick: F. *bastonnade*—from Sp. *baston*, a stick: It. *bastonnata*]: to give a sound beating to with a stick; N. the punishment among eastern nations in which the offender is beaten with a stick or cudgel, especially on the soles of the feet. BAS'TINA'DING, imp. BAS'TINA'DED, pp.

BASTION, n. *băst'yōn* [Sp. and F. *bastion*—from It. *bastione*: F. *bâtir*, for *bastir*, to build]: a mass of earth built as a wall and faced with sods or bricks, standing out from a fortified work to protect its walls; a permanent fortification consisting of two faces forming a salient angle or arrow-point BASTIONED, a. *băst'yōnd*, furnished with bastions.

The B. is one of the principal defense-works in a fortified place. It is a kind of tower, very broad in relation to its height. The plain wall called the *curtain*, which often surrounds a fortified town, is usually a polygon of many sides; and in that case, bastions occupy all, or nearly all the salient angles. Bastions are mostly five-sided; the two outermost sides are the *faces*, meeting in an angle towards the enemy; the two on either side of these are the *flanks*, meeting two curtains or portions of wall; and the fifth side, open to the interior of the fortified place, is the *gorge*. Bastions may be regarded as projections, which enable the defenders to watch the approach of the enemy to the foot of the wall, and to frustrate them by a flanking fire. Taking the average range of modern ordnance and muskets as a basis, engineers decide on a distance of 300 to 400 yards between B. and B. The length of each face and flank of a B. is so regulated, that two bastions can defend each other and the intermediate portion of wall. The main substance of a B. is an immense mound of earth, capable of supporting heavy

BASTITE—BASYLE

guns, and of receiving the fire of the enemy; but it is faced and strengthened in many parts with brick and stone. The top is broad enough to allow room for the large guns, and for infantry and artillery soldiers. A *hollow* B. has the space within it kept down to the level of the town or natural ground; but a *solid* B., filled up to the top with firm materials, is considered to be the best defensive construction. Vauban devised the plan of having large *detached* bastions opposite the chief angles of the place, with a ditch behind each; a tower or small B. being placed at the real angle of the wall behind. See FORTIFICATION: SIEGE.

BASTITE, n. *băst'īt* [Ger. *bastit*—from *Baste*, in the Harz Mountains, where first discovered]: a mineral, called also *Schiller Spar*; altered enstatite (bronzite). Its hardness is 3·5—4; its spec. grav. 2·5—2·76; its lustre is like that of bronze, whence the name *Schiller*, in Ger., lustrous.

BASTONITE, *băs'ton-īt* [from *Bastogne*, in Luxemburg, where found]: a greenish brown or bronze foliated mineral; an altered iron mica.

BASUTOLAND, *ba-sū' tō-lănd*: a rugged country n.e. of the Cape Colony, in south Africa, along the head waters of Orange river; bounded by the Orange Free State, Natal, and Cape Colony; 11,745 sq. m. The people, Basutos, are of the great Bantu stock to which the Kafirs (q.v.) also belong; and they are either closely allied to the Betjuans (q.v.) or Bechuanas, or are a subdivision of them. The Bantu races are distinguished on the one hand from Hottentots and Bushmen, and on the other from Negroes. The Basutos are superior to the Kafirs in intelligence and industry, and in appreciation of civilized customs, but inferior in bodily development and warlike qualities. B. is well watered, has a fine climate, and is an excellent grain-producing country. Immense herds of cattle are reared. There are no navigable rivers, but the roads are good. Products are wood, wheat, mealies, and Kafir corn, or Durra. Grain export, 1892, was valued at about \$650,000. Cattle and wood were exported. Total exports 1901–1902, \$834,470. B. was annexed to Cape Colony 1871; but by the people's urgent request, it was brought under imperial rule 1884, and is governed by a Brit. resident commissioner. The cap. and chief town is Maseru (pop 862). There are 115 schools, mostly missionary. European settlement is prohibited.—Pop. (1901) 263,500, of whom European 647.

BASYLE, or **BASYL**, n. *băs'il* [see **BASE** 2: Gr. *ulē*, the substance of which anything is made]: in *chem.*, a metal which, by union with oxygen, produces a Base (q.v.)—thus lime or calcic oxide is a *base*, but calcium is a *basyle*. Thus all the metals are examples of simple basyles, and ammonium (NH₄), ethyl (C₂H₅), methyl (CH₃), etc., represent compound basyles. Another property which a B. possesses is that it can unite with a salt Radical (q.v.), like chlorine or cyanogen, to form salts. Thus the B. sodium (Na) combines with chlorine to produce a salt—in fact, common salt (NaCl); and mercury (Hg) unites with cyanogen (Cy) to form the salt cyanide of mercury (HgCy).

BAT.

BAT, n. *băt* [It. *battere*; F. *battre*, to beat—from OF. *batre*—from mid. L. *batērē*: Hung. *bot*, a stick: Gael. *bat*, a staff]: a staff, club, or implement for striking; the flat club for striking the ball in cricket; a stick; a piece of wood broader at one end than at the other; cotton in sheets for quilting; a piece of brick: V. to play with a bat at cricket. **BAT'TING**, imp.: N. the management of a bat. **BATTED**, pp. *băt'téd*. **BATSMAN**, n. *bäts'măn*, in *cricket*, the man who holds the bat.

BAT, n. *băt* [*bak*, as the common name of an animal: Scot. *bak*, *baki*, or *bakie-bird*; Sw. *nattbaka*, the bat or rear-mouse: L. *blatta*, a night-moth: Icel. *blaka*, to flap]: a nocturnal mammal flying by means of large wings formed of a web of skin stretched between the elongated fingers. **BAT'TISH**, a. like a bat. **BAT'FOWLING**, a method of catching birds at night by lighting straw or torches and beating the bushes where they roost, which causes them to fly blindly into a net held up for that purpose.

BAT, *băt*: common name of all animals of the class *Mammalia* which are furnished with wings: the order *Chiroptera*, distinguished by great elongation of the fingers, to support the leathery membrane which gives power of flight. The bones are not pneumatic, as in birds; the radius does not rotate on the ulna; the eyes are small, the ears large, and the touch acute. The order is divided into two sections, insectivorous and frugivorous; the first has 5 families: the Leaf-nosed B. of S. Amer.;

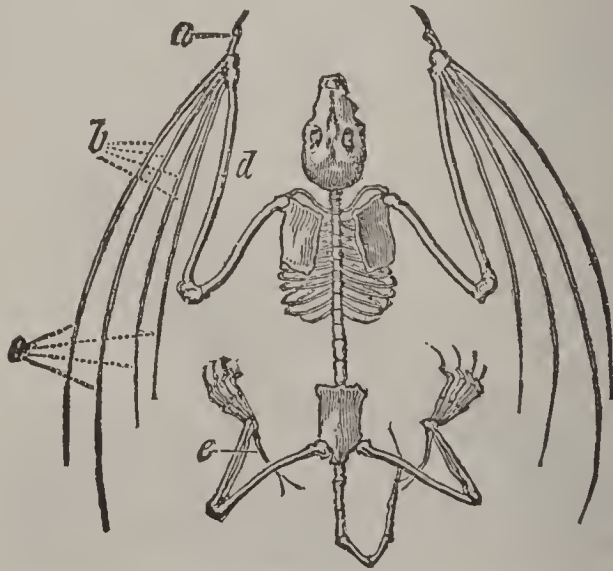


Long-eared Bat (*Plecotus auritus*).

the Thick-legged B. of both hemispheres; the Horse-shoe B. and the Lyre B. of the old world; and the Typical B. (*Vespertilionidæ*), world-wide and common. The large frugivorous bats, *Pteropodidæ*, are called Fox-bats, from their fox-like head; they belong to s. Asia, the E. Indies, Australia, and Africa. Cuvier made the *Galeopithecidæ* (Flying Lemurs, of the Indian Archipelago) a family of *Chiroptera*; but they have only an expansion of skin between the limbs, unsupported by fingers, and useful only as a parachute, as in the case of flying squirrels. They are placed among *Insectivora*, or by some authors in the lemur division of *Quadrumanæ*.

It is very interesting to compare the organs of flight in

bats with those of birds, both as to the points in which they agree, and as to those in which they differ. They beat the air, as birds do, with their anterior members; but the requisite extension of surface is not obtained by quills, but by a great elongation of the arms and fingers, upon which a thin membrane is stretched, folding close to the body by means of their joints, when the wing is not in use. Attention to the accompanying figures of the skeleton of a bat, and of a bat flying, will show the relation of the bones of a bat's wing to the bones of the human arm and hand, or to the ordinary bones of the anterior extremities in quadrupeds which have fingers or toes. The thumb, *a* (in figure of skeleton) is short, armed with a strong nail, and not at all included in the wing-membrane, nor used in flight. The bones most elongated of all are the metacarpal bones, or bones of the hand, *b*; the true finger-bones, *c*, are not so much so. The fore-arm, *d*, has not two bones (radius and ulna), but only one (the ulna), with a sort of rudiment of the other; the rotatory motion, of which these two bones afford the means, being not only unnecessary to bats, but at variance with the purpose chiefly designed in this part of their structure, of a powerful stroke in one particular direction. For a similar reason, 'the fingers of this strange



Skeleton of Bat.

hand are incapable of closing towards the palm, as ours do, when grasping an object: their only movements are such as fold up the wing against the side of the body, by laying the fingers close along the side of the fore-arm, as in closing a fan.' Great strength, however, was requisite in the shoulder; and, accordingly, we find an analogy to birds in the size and solidity of the bones in this part, as well as in the thickness of the muscles by which the wings are moved, and still more in the great dimensions of the sternum, or breast-bone, to which they are attached. The sternum is also furnished with a medial ridge, as in birds, for the better attachment of the muscles. The ribs are large; but the other bones generally, as those of the head and the pelvis, are delicate, and appear designed for lightness.—The wing membrane of

bats extends along the flanks to the hind-legs, although these aid little in flight; but it is attached to them so as to leave the feet free, which are much like the feet of ordinary small quadrupeds with toes and claws, and are employed with the thumbs of the anterior limbs in creeping upon the ground, in climbing perpendicular rough surfaces, or for hanging with the head downward in that remarkable posture of repose in which bats pass great part of their lives, and in which they differ from all other animals.

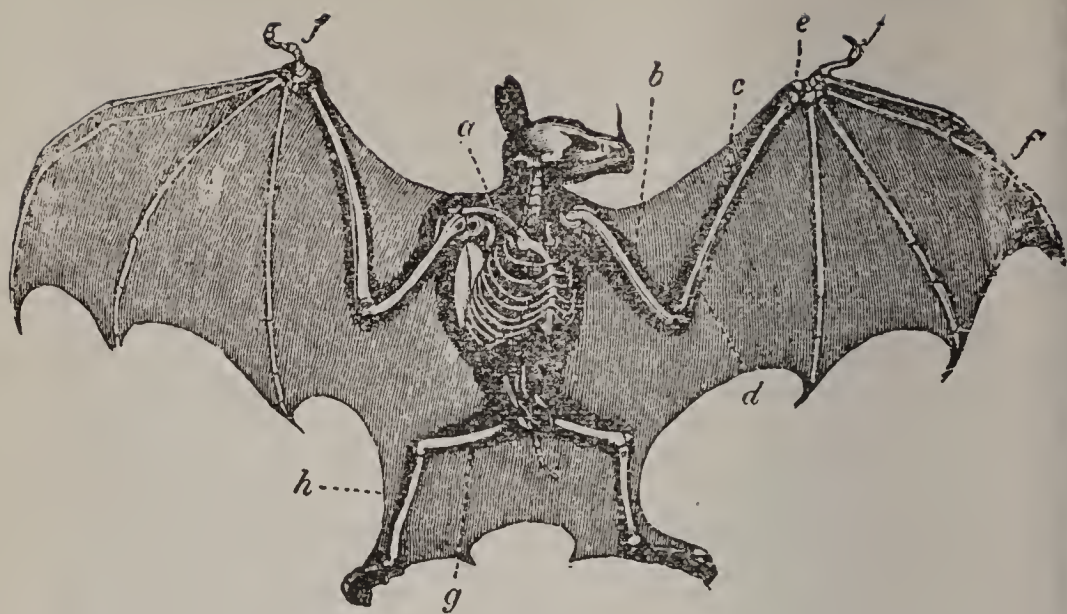
In the greater number of species of B., the wing-membrane extends not only to the hind-legs, but beyond them to the tail, which is included in it, a peculiar bone (*e* in fig. of skeleton) also arising from each heel to afford further support to this part of it, which seems to serve purposes analogous to the tail of birds, acting as a rudder, and enabling the animal to make its rapid evolutions in the air. The fruit-eating bats of tropical regions, which have no need to perform such evolutions, are destitute of this interfemoral part of the membrane; and according to the habits for which each species has been designed, the tails are long or short, entirely included in the membrane, or only for part of their length, or produced a very little beyond it, and terminating in a hard tip, so that the tail is capable of being used to aid



Bat in repose.

in creeping or climbing, evidently possessing considerable power, and being curved and moved in a manner which suggests a slight analogy to the prehensile tails of monkeys.

Bats were placed by Linnæus in his order *Primates*, along with monkeys and lemurs, with which they agree in their pectoral teats and in other characters, particularly of the organs of reproduction. In one genus (*Dysopus*), there is an additional resemblance to the *Primates* in the partially opposable thumbs of the hind-feet, and a trace of this character is to be found in the fore-thumbs, already noticed. The order *Primates* is now restricted to man and the anthropoids by those who make such an order—monkeys and the squirrel-like lemurs and flying lemurs being no



Bat.— Skeleton of *Phyllostoma hastatum*: *a*. Clavicle; *b*. Humerus; *c*. Radius; *d*. Ulna; *e*. Carpus; *f*. Thumb; *f'*. Finger; *g*. Femur; *h*. Tibia.



Bat *Myotis nigrescens*, sleeping

BAT.

longer included. Bats feed chiefly on insects, some chiefly on fruits. They exhibit considerable variety both in the number and character of their teeth, as might be expected in animals which differ so much in their food. All of them have four rather large canine teeth; the incisors vary much in size and form, as well as in number. The digestive apparatus exhibits a variety corresponding with that of the teeth;



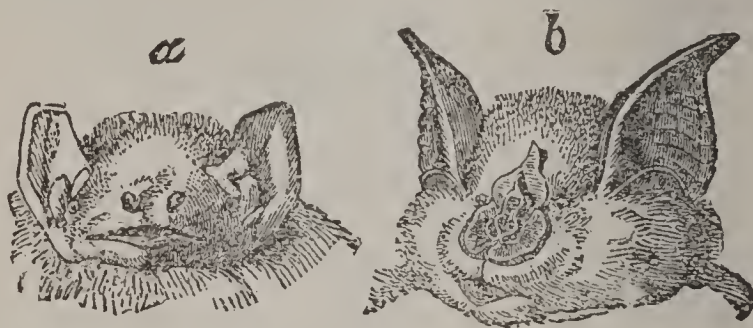
Head of Pteropus.

the intestinal canal of the Vampires (q.v.), which live by sucking the blood of animals, proceeding almost in a straight line from one extremity of the body to the other, while that of some of the frugivorous bats, as the Kalong (q.v.) (*Pteropus*) of Java, is seven times as long as the body.

Except in the power of flight and things essential to it, bats have no resemblance to birds. The old English name *Flittermouse*, and the German *Fledermaus*, indicate an early popular recognition of their true place in creation. They are generally nocturnal animals, or, at least, prefer the twilight, although one of the British species may occasionally be seen pursuing insects during winter at mid-day. They generally spend the day in caves, hollow trees, and other dark recesses, often under the roofs of houses, and in crannies of ruined or deserted buildings. They are found in almost all parts of the world, except the very coldest, but are most numerous and of greatest size within the tropics. Those of temperate climates generally spend the winter in a state of torpidity, in which, although circulation continues very languidly, respiration does not ordinarily take place. The whole number known to Linnæus amounted to a very few species; but now upwards of 130 species have been described, and probably the actual number existing is very much greater. It is not unlikely that some exaggerated accounts of the great bats of warm climates gave rise to the fable of the Harpies, which Virgil introduced into the *Æneid*. The bats of Europe are all small; the body of the largest British one is not so large as a mouse, and the fullest stretch of its wings about 15 inches, while the common British species are much smaller; but in the Kalong, already mentioned, the stretch of wing is 5 ft. Of British species, the largest is the Noctule B. (*Vespertilio noctula*), a very local species found chiefly in the s. of Eng-

BAT.

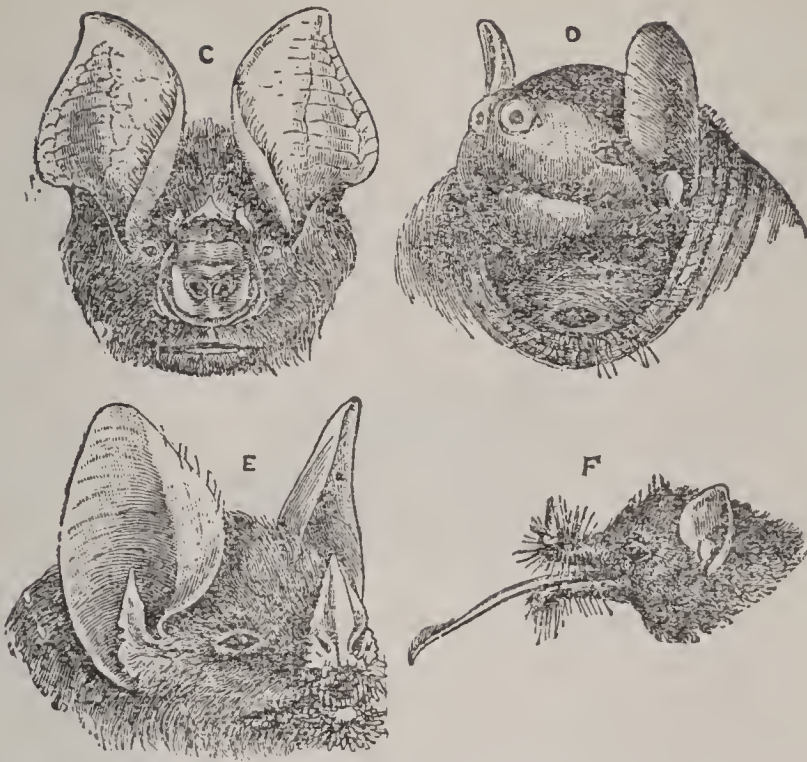
land; it is about the same size as the somewhat rare Gray B. of N. Amer. The commonest species in the e. United States are the little brown B. (*V. subulatus*) and the red B. (*Atalapha noveboracensis*). The foreign Long-eared B. (*Plecotus auritus*) is distinguished by its enormously large and very beautiful ears, which, when it is asleep, are folded up in a remarkable manner under the arm, the long *tragus* then resembling a slender ear. This great development of the ears is characteristic of certain



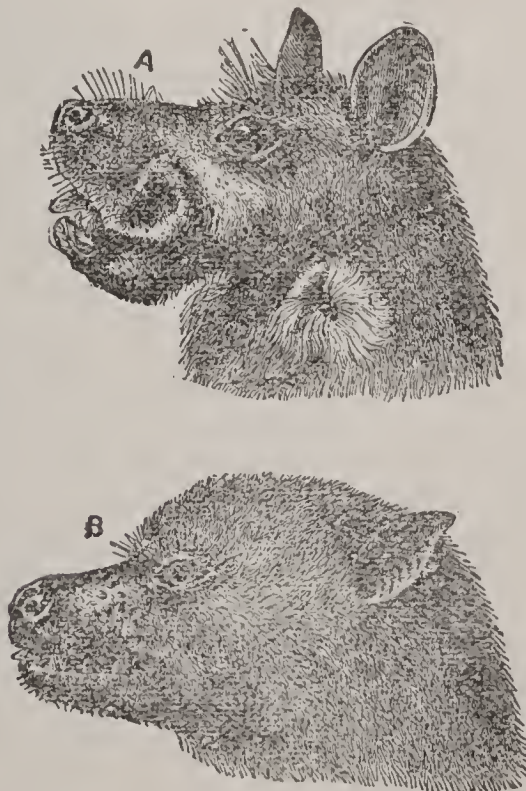
a, Great Bat or Noctule Bat (*Vespertilio noctula*).
b, Greater Horseshoe Bat (*Rhinolophus Ferrumequinum*).
 Both British.

genera of B., that part of the ear called the *tragus* attaining also a remarkable size, so that it seems like a smaller ear in front of each large one. In many species, especially of the 1st and 3d families, there is a still more remarkable membranous or leaf-like appendage on the nose, which in some is simple, in some, complex, and often of large size, giving an extraordinary appearance to the face. Some of the larger species, having a nasal crest, are called Spectre Bats (q.v.); two species of B. (*Rhinolophus*), possessing such an appendage, are called Horseshoe Bats, from the form of the crest. It is supposed that this nasal appendage is of use as a very delicate organ of touch, perhaps also of smell; as the great ears may be of use both for touch and hearing. These senses must often guide bats when that of sight cannot be employed; and the sense of touch appears to be possessed in high degree even by the wing membrane. By supposing it to be affected by the pulsations of the air, Cuvier accounted for the power displayed by bats which had been deprived of sight, of avoiding objects among which they flew, without the necessity of ascribing to them, as Spallanzani had done, the possession of a sixth sense.

Among the peculiarities which distinguish certain genera of bats, is the absence not only of the upper cutting teeth in the East Indian and African genus *Megaderma*, but even of the bone in which these teeth are usually placed; and another tropical genus *Nycteris*, of which the species are found in Africa and Java, have the skin attached to the body only at a few points, and capable of being blown up like a bladder, at the pleasure of the animal, by means of air which is inhaled through the nostrils into cheek-pouches communicating by small apertures with the general skin-bag. The use of this is wholly unknown.



Bat.—Heads of (C) *Phyllorhina tridens*, (D) *Chiromeles torquatus* (female), (E) *Prachyops cirrhosus*, (F) *Chæronycteris mexicana*.



Bat.—Heads of (A) *Epomophorus gambianus*, (B) *Pteropus rogericensis*.

BAT--BATARDEAU.

Bats walk or creep awkwardly upon the ground, one side of the body being jerked forward, and then the other, yet they run with considerable celerity. There is a common notion, that they cannot rise easily from a level surface, but must find some eminence from which to throw themselves. Of the fallacy of this, any one will soon be convinced who gets a B. and places it upon the floor.—Bats commonly produce one or two young at a birth.—Some of the species are very gregarious; others often fly about in pairs:



Bat Walking (*Plecotus auritus*).

great numbers, and of different species, are often found congregated in their places of hibernation or repose.—Some of the species are easily tamed, and become very familiar; but their odor is disagreeable, and it is generally difficult to keep them long alive.

Fossil remains of *Cheiroptera* are occasionally found in eocene rocks, but owing to the delicacy of the bones, great difficulty has been experienced in the determination of the genera and species.

BAT, or BÂT, in Military Matters (see BATMAN): originally a kind of pack-saddle; hence a bathorse was a baggage horse bearing a bat or pack, and a batman was a servant in charge of the horse and bat. By a modification of meaning, a batman is now any soldier allowed to act as servant to an officer. When British troops are sent on foreign service, bathorses or mules are provided (if carriages are not forthcoming) for carrying the regimental books, the kettles and tents, the medicine-chest, the veterinary medicine-chest, intrenching tools, armorers' stores, saddlers' stores, etc.—about 20 such horses or mules to each battalion. Bathorses and batmen are also provided for carrying officers' camp equipage. An allowance for procuring these accommodations is usually called bat-money.

BATANGAS, *bâ-tân'gâs*: seaport town of the Philippines, Island of Luzon, cap. of the province of the same name. Lat. 13° 45' n., long. 121° 5' e. Distance from Manilla, 50 m. s. B. was founded 1581, is well built, and has an elegant appearance. It is finely situated on an extensive bay which opens into the Strait of Mindora; has large commercial interests; and is the centre of a rich sugar-growing region. Pop. province, 311,180; town, over 35,000.

BATARDEAU, n. *bât'âr-dô'* [F. *batardeau*, a dike or drain—dim. from OF. *bastard*, a dike]: a strong wall of masonry, built across the outer ditch of a fortress, to sus-

BATATAS.

tain the pressure of water when one part of the ditch is dry and the rest wet. It is built up to an angle at the top, and is armed with spikes, to prevent the enemy from crossing; and sometimes a stone tower is provided to strengthen the defense. There is a sluice-gate to regulate the admission of water.

BATATAS, *ba-tā-tas*, or SWEET POTATO (*Convolvulus Batatas*, or *Batatas edulis*, or *Ipomœa Batatas*: perennial plant with long creeping stems, heart-shaped leaves on long stalks, and variously lobed, large purple flowers much resembling those of the best known species of *Convolvulus*, and very large oblong acuminate tubers. The tubers are highly esteemed as food either roasted or boiled; they are sweet, wholesome, and nutritious, but somewhat laxative. The native country of the B. is unknown. It is largely cultivated in tropical and sub-tropical regions, and to some extent in temperate climates. It was introduced into Europe from N. America immediately after discovery of the new continent, was the potato mentioned by Shakespeare, and was cultivated extensively in Spain and considerably in neighboring countries before the Irish potato (see POTATO) came into notice in those lands. For its perfect development it needs a moderately long growing season, and a warm and light, but fertile, soil. It is a common crop in most of the southern states, where it thrives better than the Irish potato, is extensively grown in N. J., and in small quantities is produced in most of the northern states, though it cannot be profitably grown for the market north of the latitude of Long Island. It is grown almost entirely from sprouts of tubers which have been placed in a Hotbed (q v.) early in the season. Well rotted manure, or some commercial fertilizer, should be scattered in rows and covered with a small plow, thus forming ridges upon which the plants are set. The rows may be 3—4 ft. apart, the plants 18—24 inches apart in the rows. As the plants increase in size the ridges are to be made higher and broader by running a plow between them. Weeds must be kept out; and the vines should be moved occasionally to prevent their forming roots at the joints, as this would cause the starting of a great number of tubers too small for use and also prevent the growth of those in the hills. As soon as the vines are touched by frost they should be cut, near the stems, with a scythe, and the tubers harvested. For harvesting a 6-tined fork is often used. Digging should be done when the ground is dry and before cold weather comes. Great care must be taken not to cut or bruise the tubers. At the south the tubers are stored in pits in the field; but at the north, where it is difficult to keep them after the winter opens, they must be carefully dried and should be put in crates filled not more than 18 inches deep, and so arranged that there will be free circulation of air. They should be stored in a room in which a uniform temperature of about 58° can be maintained. They are sometimes packed in barrels with dry sand, cut hay, or chaff. As compared with Irish potatoes, there are but few varieties. Of these

the Nansémond is probably the most extensively grown, though it does not keep as well as the Trinidad, Hayti Yam, and a few other sorts. The yield varies, with the variety, soil, cultivation, and season, from 100 to 500 bushels per acre. Among the most formidable enemies of the B. is the sawfly, whose larva feeds on the leaves. Hellebore, or pyrethrum powder may be used, or Paris green can be applied as to Irish potato plants (see POTATO-BEETLE). There are several forms of rot and blight, some very destructive. Preventive measures are the rotation of crops and the use of sound seed. Spraying with copper fungicide (see FUNGICIDE) is the most efficient remedy yet discovered.

BATAVI, *bāt'ă-vī* (or as in some MSS., *VATAVI*): a German people, who anciently inhabited a part of the present Holland, particularly the island called after them, Batavia, formed by the branch of the Rhine which falls into the sea at Leyden, the Waal, and the Meuse. Their country, however, extended across the Waal, but its boundaries cannot now be precisely determined. According to Tacitus, they were originally a branch of the Chatti, who emigrated across the Rhine. They were conquered by Germanicus; became subject to the Romans, and served them so well, that they obtained the honorary title of friends and brothers of the Roman people; were exempted from taxes and assessments, being required only to provide a proportion of troops; and were permitted to choose their commanders from among themselves. Their cavalry were particularly good, and were often employed by the Romans. The first who terms the insular district inhabited by these Gauls, Batavia, is Zosimus, who also informs us that in the time of Constantius (358) it had fallen into the hands of the Salii, a Frankish tribe.

BATAVIA, *ba-tū've-a*: properly the name of the island occupied by the ancient Batavi (q.v.), became at a later date the Latin name for Holland and the whole kingdom of the Netherlands. The name **BATAVIAN REPUBLIC** was given to the Netherlands on their new organization of 1795, May 16, and they continued to bear it till they were converted into the kingdom of Holland, under Louis Bonaparte, 1806, June 5.

BATAVIA: cap. of the empire of the Netherlands in the East Indies; on the n. w. coast of Java, at the mouth of the Tjiliwong, frequently called the Jaccatra, from the former native town on the ruins of which the present city was built. There is good anchorage for large ships in the offing, and it is navigable for smaller vessels towards the interior. The influence of a vertical sun on this Holland in miniature led it to become proverbial as the grave of Europeans. Later, however, the climate has been greatly improved by draining. The temperature, though not extreme, is oppressive from its uniformity, the mean of winter being 78.1° F., and that of summer only 78.6°. The latitude is 6° 7' 40" s., and the longitude 106° 52' e. Notwithstanding the growing prosperity of Singapore, B. continues to be the commer

BATAVIA—BATE.

cial emporium of the far East. Its markets present at once all the productions of Asia, and all the manufactures of Europe. In 1811, while Holland was under France, B. was taken by the English, but was restored to its former owners in 1816. Latterly, B. has found Singapore a formidable competitor for the trade between East and West. The Dutch government has laid a telegraphic cable of 600 m. from B. to Singapore. There is a railway from B. to Buitenzorg, and other points in the interior. Pop. 1900) 115,887.

The province of Batavia is low, but rises gently towards the s. The forests have all been cut down for the use of the sugar factories. It is well adapted for fruit-trees and vegetables, which are cultivated by Chinese gardeners. The peculiar character of the people has been lost by the influx of and intermarriage with strangers from all districts of the Indian archipelago. The language in mixture of Sundanese, Malay, and other tongues, and is called low Malay. The largest estates are held by Europeans, the smaller by Chinese and natives. The religion is chiefly Mohammedan. There are good post-roads and some canals. The industries continue to increase, and chiefly consist of factories for making machinery for distilling and for sugar works; distilling arrack, copper and tin work, dyeing, etc. The nutmeg, cacao, and cocoa-nut tree are successfully grown. The live stock consists of buffaloes, horses, and cattle. Pop. of province of B., including Buitenzorg, nearly 1,000,000, of whom 8,000 European, 65,000 Chinese, the remainder mostly natives.

BATAVIA, *ba-tā've-a*: cap. of Genesee co., N. Y., on Towanda Creek, 32 m. w.s.w. of Rochester, 36 m. n.e. of Buffalo. The New York Central and three other railroads centre here. It contains the court-house, 8 churches, a convent, half a dozen banks, a public library, the Batavia Union School, ladies' seminary, one daily and three weekly newspapers, and various important manufactories. The New York State Institute for the Blind, built 1869, is one of the finest public buildings in the state. Pop. (1900) 9,180.

BATCHELLER, GEORGE SHERMAN: an Amer. jurist; b. 1837; admitted to the bar 1858; elected to the N. Y. Legislature 1858, 1885, and 1889; served in the Union army during the civil war; appointed 1875 one of the judges of the International Tribunal of Egypt for a term of five years; became its president in 1883; and was reappointed to the International Tribunal at the request of the Egyptian Government 1897. He was assistant secretary of the U. S. Treasury 1889-90; and appointed U. S. Minister to Portugal 1890.

BATE, v. *bāt* [*F. abattre*, to break down: Sp. *batir*, to lose courage, to lessen (see BAT 1 and ABATE)]: to lessen anything, as by beating it down with a club; to retrench; to take away; in *OE.*, to grow less; to slacken, as speed. BA'TING, imp. BATED, pp. BATEMENT, *bāt'měnt*, among *artificers*, diminution. WITH BATED BREATH, in such a state of fear or expectancy that even the sounds of breathing are suppressed.

BATEMAN—BATES.

BATEMAN, KATE JOSEPHINE: see CROWE, KATE JOSEPHINE (BATEMAN).

BATEMAN, *bāt'măn*, NEWTON, LL.D., educator: 1822, July 27—1897, Oct. 21. His family removed to Ill. 1833, and he graduated at Illinois Coll., Jacksonville, 1843. He studied at Lane Theol. Seminary (Presb.); was a school principal in St. Louis, prof. of math. at St. Charles Coll., Mo., 1845–51; then principal of the free public school Jacksonville, Ill., also supt. of the school system of that city, and commissioner of the county; principal of the girl's acad., Jacksonville, and state supt. of instruction, 1858. During his 10 years of service as state supt., Dr. B. was active in establishing the Normal Univ., of the state. He was pres. of Knox Coll., Galesburg, Ill., 1877–92.

BATES, *bāts*, ARLO: journalist and author; 1850, Dec. 16—
—————; b. East Machias, Me. Having graduated at Bowdoin Coll. 1876, he began literary work in Boston; was active as a republican in state politics 1878; became editor of a civil-service reform journal; and editor of the *Sunday Courier*, Boston, 1880. Besides many magazine articles, his published works include *Patty's Perversities* (1881); *Mr. Jacobs* (1883); *The Pagans* (1884); *A Wheel of Fire* (1885); *Berries of the Brier* (poems, 1886).

BATES, DEWEY: artist: 1851—
—————; b. Philadelphia. In youth he studied art in European schools, first at the Royal Acad., Antwerp; then for several years at the *École des beaux arts*, Paris. He studied also under Gérôme.

BATES, EDWARD, LL.D.: statesman: 1793, Sep. 4—1869, Mar. 25; b. Belmont, Va., of Quaker descent. He emigrated to Mo. 1814, and practiced law; also served in the legislature; was state atty. and served one term in congress; He declined the portfolio of sec. of war offered by Pres. Fillmore. Having taken strong ground as an anti-slavery man in his opposition to the Missouri compromise, he was made a candidate for the presidency, but the nomination went to Mr. Lincoln, by whom he was appointed atty.-gen.

BATES, JOHN COALTER: an Amer. military officer; b. 1842; served throughout the civil war in the regular army; promoted captain 1863, May 1, major, 1882, May 6, and colonel of the 2d U. S. Infantry, 1892, April 25. In the war with Spain 1898 he was appointed brig.-gen. of volunteers; promoted to maj.-gen. for services at Santiago; honorably discharged under this commission 1899, April 13, and on the same day was recommissioned a brig.-gen. of volunteers. He was appointed military governor of the province of Santa Clara, Cuba, 1899, Feb.; ordered to the Philippines in April of the same year; assigned to the command of the Department of Southern Luzon 1900; and promoted brig.-gen., U. S. A., 1901.

BATES, JOSHUA: financier: 1788–1864, Sep. 24; b. Weymouth, Mass.; son of Col. B. of the Revolutionary army, of an old Mass. family. From the age of 15 for more than 20 years he was, except during 4 or 5 years, in the employ of William Gray and Son, Boston merchants, whose business connections were world-wide; and from the first he showed

a fidelity and sagacity which ultimately caused the Grays to make him their financial agent in Europe, in close relation with great foreign firms. Having removed to London 1826, he entered the firm of Baring Bros. & Co. (1828), eventually becoming head of that great firm. As umpire in the contested claims between citizens of the two countries arising from the war of 1812, he gained high distinction. His sympathy with his native land continued till his death. He was prominent in founding and opening 'free to all' the Boston public library, whose great hall, Bates Hall, perpetuates his memory. His first gift of \$50,000 (1852) was followed by another of 30,000 vols. He died in London.

BATES, WILLIAM, D.D.: English Non-conformist clergyman and writer; 1625, Nov.—1699, July 14; b. Hackney. He was one of the Savoy conference which met to review the Liturgy. A short time after the restoration of Charles II., he was made one of the king's chaplains, and except for his non-conformity, would probably have been created a bishop. He was characterized by his contemporaries as 'the silver tongued.' He published anonymously, 1681, *Vitæ Selectorum Aliquot Virorum*. The treatise on which his reputation rests is entitled *The Harmony of the Divine Attributes in the Continuance and Accomplishment of Man's Redemption*. His collected works were published 1700, 1723, and 1815 (4 vols). He ranks among the most learned and polished of the Puritan writers.

BATES COLLEGE: at Lewiston, Me.; organized as a seminary by the Free Baptists 1854; changed to a college for both sexes 1863, and re-named in honor of Benjamin Bates, of Boston, who gave \$100,000 toward its endowment. It is a college of liberal arts, comprising also a divinity school. Faculty 22; students 340; endowment \$300,000; library 24,000 vols.; annual receipts for tuition \$4,500; endowed scholarships 25, besides 10 owned by the state; buildings 6, campus 50 acres. Pres., Oren B. Cheney, D.D., resigned 1893, was succeeded by George C. Chase.

BATH, n. *báth*, in *plu.*, *báthz* [AS. *bathian*, to bathe—from *baeth*: Icel. *batha*; Ger. *baden*, to bathe: Icel. *baka*, to heat—*lit.*, a place of warmth]: a place to bathe in; that in which the body or part of it is bathed; in *chem.*, hot water, hot sand, etc., used as a source of heat, or for modifying it; a Heb. measure, the same as the *ephah*, equal to the tenth of a *homer*. BATHE, v. *báth*, to warm by the application of hot water; to wash the body or part of it with water, etc.; to lie in a bath; to foment. BATHING, imp. *bā'thīng*. BATHED, pp. *bāthd*. BATHER, n. one who. DRY-BATH, one made of hot sand, ashes, etc. AIR-BATH, exposure of the body to the refreshing influence of ordinary air; also the exposure of the body to the influence of *hot air*, as in a TURKISH BATH. PLUNGE-BATH, a bath in which the whole body is immersed. DOUCHE-BATH, *dósh'*-, a bath in which a stream or jet of water is directed with considerable force upon some part of the body. SHOWER-BATH, a bath in which the water is poured upon the body in the form of a shower or spray. MEDICATED BATHS, *méd'ì-kā'tēd báths*, in which the water is impregnated with medicinal preparations.

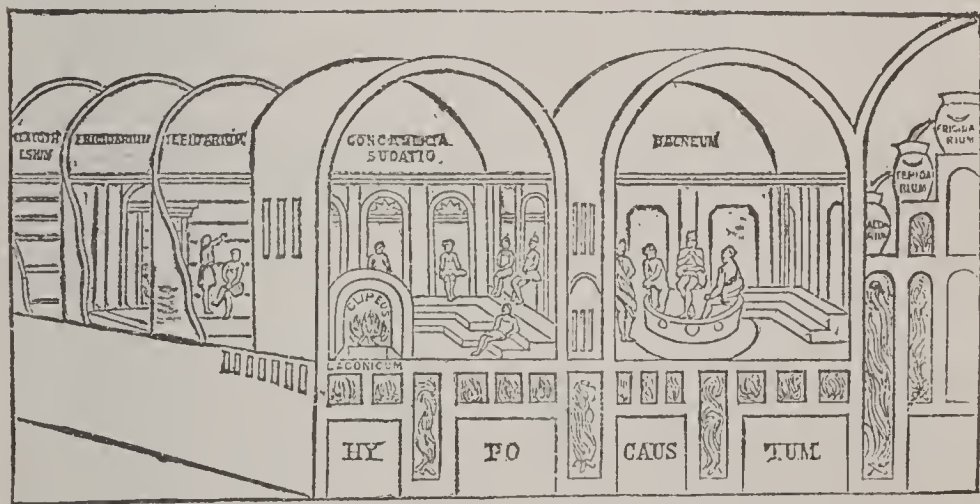
BATH—BATHING: usually the place—or the act—of immersion of the body or a part of it in water. In a more extended signification, it means the surrounding of the body with any medium differing in nature or temperature from its usual medium; thus, we speak of a blood-bath, a vapor-bath, a cold-air bath, a compressed-air bath (q.v.), an earth-bath. A fourfold division may be made of baths: 1. According to the substance with which the body is surrounded—into water, oil, milk, gas, sand, and other baths; 2. According to the manner of application—into river, slipper, plunge, shower, dropping, vapor, and douche baths; 3. According to the parts of the body subjected to the application—into whole, half, sitz, foot, hand, and eye baths; and 4. According to the temperature of the substance applied—into cold, tepid, warm, and hot baths.

Among the Egyptians, the bath was practiced as a religious rite; and, in general, the opinion prevailed throughout antiquity, that purification of the body induced or signified moral purity. Man, it was thought, ought to present himself pure in body and soul, when he engaged in the service of his god, or in any transaction that brought him into immediate contact with that being. In making the bath a frequent religious ordinance, Moses may have had in view the prevention or more speedy cure of those skin-diseases so prevalent in the East. The Mosaic Law prescribes expressly, in some cases, the use of running water, which has given rise, through a misunderstanding, to the deleterious cellar-baths of the Jews. In Palestine, the wealthier Jews had private baths in their houses, and ponds in their gardens, an arrangement usual in all civilized parts of the East, and still continued. There were, besides, public bath-houses among the Jews, as among other nations. Among the Greeks, also, bathing was very early in use. The practice is often alluded to in Homer. Bathing, among the Greeks, as among other nations, was counted a religious rite, and was connected with the preparations for sacrifice, for the reception of oracles, for marriage, etc. We possess, however, no detailed accounts of the construction and arrangements either of private or of public baths in Greece, which last were mostly connected with the gymnasia. The men bathed together; that there were public baths for women, appears probable from various indications.

Among the Romans, although warm baths (*thermæ*) were in use from the earliest times, yet it was only at a late period that they were so extensively adopted; and then the increase and universal spread of luxury had driven the primitive object of bathing into the background, so that the public baths were looked upon as places of general resort for pleasure. The most of these public baths were built under the emperors. They were numerous in Rome and in the provincial cities. Their construction may be gathered from their numerous remains, and from the descriptions of them given by Roman writers; they resembled the Turkish and Russian baths.

The essential parts of a Roman bath were as follows.—1. The *hypocaust*, or stove, in the basement-story, for heating

both the bath-rooms and the water. The water was contained in three receptacles or boilers, so arranged that the undermost, immediately over the fire, contained the hot water; the one in the middle, the tepid water; and the uppermost the cold water. These vessels were so connected by pipes, both with the bath-rooms and with one another, that the hot water that flowed from the lowest boiler was replaced by tepid water from the one above; and that, again, by cold from the uppermost.—2. The *apodyterium*, or room for undressing.—3. The *frigidarium*, or room with a basin for cold bathing.—4. The *tepidarium*, the purpose of which cannot be exactly determined, but which seems to have been intended for bathing in tepid water, and also for allowing the body to cool down in a mild temperature.—5. The *caldarium*, in which is sometimes the *sudatio*, or sweating-bath, and sometimes the real hot-water bath, were taken. This room had hollow walls, and the floor rested on low pillars over the hypocaust, so that it was surrounded on all sides with heated air. The *laconium*, which is spoken of as a part of the *caldarium*, was probably a kind of stove that was heated from the hypocaust, and contributed to raise the temperature. In the bath-rooms there were basins (*alvei*) for holding the water, and round the walls were benches or seats, which, in the *caldarium*, were raised as in an amphitheatre, in order to give the bathers the choice of the higher temperature of the upper part of the room, or of the more moderate of the lower. The *caldarium* contained also a *labrum* or vase of several ft. diameter, filled with cold water, into which the bathers dipped after the hot bath. With these essential parts of a bath, there were



Roman Bath, from a Painting on the Walls of the Thermæ of Titus at Rome.

usually connected an *unctuarium* or *elæothesium*—i.e., an anointing-room, and often gardens, covered walks, rooms for games, etc.

The process of bathing was this: After undressing in the *apodyterium*, the bather was anointed in the *elæothesium*, with a cheap coarse oil, and then proceeded to a spacious apartment devoted to exercises of various kinds, among which games of ball held a prominent place (hence

the hall was called *sphæristerium*). After exercise, he went into the caldarium, either merely to sweat or to take the hot bath; and during this part of the process, the body was scraped with instruments called *strigiles*. Being now dried with cloths, and slightly anointed all over with perfumed oils, he resumed his dress, and then passed a short time successively in the tepidarium and the frigidarium, which softened the transition from the great heat of the caldarium into the open air.

The public baths for women were of similar construction, and were much frequented even by the most respectable. The women bathed in company like the men. The irregularity of men and women bathing together is also alluded to by ancient writers; and in later times, the baths in general became the scenes of all sorts of debauchery, as was the case at Baiæ.

The most remarkable remains of Roman baths are those of the baths of Titus, of Caracalla, and of Diocletian in Rome, and the recently excavated thermæ at Pompeii; remains of the kind are also to be found in Germany, France, and England. The extent and magnificence of those edifices it is difficult for us now to conceive. Speaking of the baths of Caracalla, Mr. Fergusson, in his *Hand-book of Architecture*, says, 'St George's Hall, at Liverpool, is the most exact copy, in modern times, of a part of these baths. The hall itself is a reproduction, both in scale and design, of the central hall of Caracalla's baths, but improved in detail and design, having five bays instead of only three. With the two courts at each end, it makes up a suite of apartments very similar to those found in the Roman examples. The whole building, however, is less than one-fourth of the size of the central mass of a Roman bath, and therefore gives but little idea of the magnificence of the whole.'

The ancient Germans seem, according to Tacitus and other writers, to have been fondest of the cold-river bath. When Roman luxury was driven out by German habits, and the north of Europe got the upper-hand of the south, baths ceased to be of public importance, and amid the tempestuous irruptions and fluctuations of the different nations, those splendid edifices fell into ruins. Christianity, however, by the institution of baptism, had preserved for the bath its religious signification; and in the middle ages, among the ceremonies preceding the solemnity of conferring the honor of knighthood, the bath was held essential. The Arabians and the Mohammedans generally had more completely adopted bathing into their manners and customs. Islam enjoins on the believer the careful preservation of corporal purity; and for this purpose, prescribes repeated daily ablutions. Besides these, certain circumstances and times make the use of the B. ritually obligatory on both men and women. For this end, not only did the rich erect splendid baths in their houses and gardens, but bath-houses for the people in general were established in every town in which there was a mosque. The public baths of the Turks of the present day are a copy of those ancient Arabian

BATH—BATHING.

baths. The construction of those oriental baths, imitations of which are now to be found in some European cities, is as follows: The building is of stone, the bath-rooms have a floor of marble, heated from below, and tubes in the walls conduct the heat in all directions. The bather undresses, wraps himself in a blanket, puts on wooden slippers, to protect him from the heat of the floor, and enters the bath-room. Here a general perspiration soon breaks through the skin, which is washed off with cold water. The body is then rubbed with woolen cloths, and smeared with a soap or salve beneficial to the skin. This is usually accompanied by the operation of 'kneading.' The bath attendant stretches the bather on a table, pours warm water over him, and then begins to press, squeeze, and twist his whole body with wonderful dexterity. Every limb is straightened and stretched, and when he has finished one side, he begins on the other. He kneels upon the bather; he seizes him by the shoulders, makes his backbone crack, and every vertebra quiver, or applies soft blows to the fleshy parts. He then takes a hair-cloth, and rubs the whole body, rubs off the hard skin of the feet with pumice-stone, anoints the bather with soap and perfumes, and finishes by cutting his hair and beard. This treatment lasts some three-quarters of an hour; and the feeling after it is as of being born anew. An inexpressibly delicious sensation of comfort pervades the body, and soon ends in a sweet sleep. After bathing, people repose in a cooler room, stretched on couches, and finally partake of coffee, sherbet, or lemonade.

In England, France, and Germany, public establishments for bathing were long unknown. It was during the Crusades, which brought the East and West into contact, that Europeans first became acquainted with the baths of the Asiatics; and the want of such institutions came to be more sensibly felt from the leprosy and other skin-diseases which intercourse with Asia introduced into western Europe. The evil was at first sought to be met by establishing hospitals; but as these were found insufficient, baths and bath-rooms were erected, which gradually became public establishments.

Besides the kinds of baths already described, there are now in **nearly all** the larger cities, generally in connection with water-baths, imitations of the vapor-baths which have been long in common use in Russia. The **RUSSIAN BATH** consists of a small apartment built of wood, with broad benches running round it, on which the people lie undressed. By throwing water upon glowing hot pebbles, a dense hot steam is produced, which envelops the bathers, and throws them into such a heat, that the perspiration breaks out over the whole body. In this atmosphere of steam, the thermometer often rises to 112°–140° F. After they have sweated for some time, and from time to time cooled themselves again, by having cold water poured over them, the skin is rubbed with soap, and with towels made of inner bark, or with brushes; they are flogged with softened birch-twigs, and then washed with tepid, and afterwards with cold water; and at last have cold water dashed over them.

BATH—BATHING.

A bather will also go direct from the sweating-bath, and plunge into a river or a pond, or roll himself in the snow. These baths are a necessary of life in Russia, and are to be found in every village. The German vapor-bath differs in this, that the steam is produced in a boiler, and that the bather remains for some time in an adjoining room of moderate temperature, wrapped in blankets, to allow the perspiration to go on, and the blood to become calm. A ruder kind of sweating-bath, in a hole in the earth, or in a baking-oven, is practiced among many nations; among the Finns, the natives of Mexico, and South America, etc.

As regards detergence, the vapor-bath is the only kind of bath that is really effectual. Seated naked in a room filled with hot vapor (which produces no inconvenience in breathing), the scurf, which, notwithstanding all sorts of previous ablutions, has accumulated on the skin, is gradually softened and loosened, and is rubbed off in a surprising manner by the hands of the bath-man who is in attendance at these establishments. As in the Turkish bath, the person is cooled down by being dashed with tepid and cold water. After this kind of bathing, the sensation is exceedingly agreeable. The process just mentioned may be said to resemble that in use by the Romans; the hands of the operator having much the same effect as the *strigiles* of the ancients. Except in eastern lands, few of the ordinary bathing establishments have vapor-baths on a proper footing; and the great value of this species of bath as a purifier of the skin is little known.

Bathing is very important in the preservation and restoration of health. Besides promoting cleanliness, the refreshing and invigorating effects of cold bathing in its various forms have always been more or less understood, as have also the soothing effects of the warm bath. But the virtues of water as a curative agent have been more fully developed in modern times, since the rise of the system of therapeutics known as the water-cure or hydropathy. With that exaggeration which is incident to everything new, the first promoters of this system gave it out as a panacea 'for all the ills that flesh is heir to.' But now that these quackish pretensions are mostly given up, it is very generally admitted that water is capable of a large range of effects, some of them apparently of the most opposite kinds; while the mode of action is nothing mysterious, but capable of explanation on the recognized principles of physiology. See HYDROPATHY—See also SKIN: TEMPERATURE OF THE BODY.

A MEDICATED BATH is one in which some substance, intended to act as a medicine, has been mixed with the liquid. This is one of the most important methods known to medical art of bringing remedies to bear upon the system. The skin is by no means impervious to foreign substances; and no other organ presents at once so large a surface to the matter to be imbibed; at times, also, the other channels by which remedies are introduced into the body cannot be used. Baths of this kind are partly imitations of natural mineral waters, and partly other remedial mixtures. The mineral substances used are common salt, chloride of lime, nitric acid, corrosive sublimate, potash or soda caustic or

carbonated, ashes, soap, iodine, sulphur, iron, etc.; the vegetable are wine, vinegar, solutions of essential-oils, infusions of thyme, rosemary, lavender, wormwood, willow, oak, and Peruvian bark, etc.; such animal substances as milk, blood, bouillon of meat, etc., are also sometimes employed as baths, with a view to impart nourishment, but whether much is taken up into the system, is doubtful. In the case, also, of vapor-baths, medicaments are added to the water with good effect; these must, of course, be volatile. If the whole body is to be immersed in the vapor, nothing must be used that might injure the organs of respiration; when the application is partial, and by a special apparatus, this precaution is less necessary. In connection with this may be mentioned the so-called SMOKE-BATHS, or medicated fumigations, in which the whole body, excepting, of course, the head, or particular parts of the body, are brought in contact with the vapors of dry medicinal substances. Resinous aromatic substances, incense, myrrh, benzoin, amber, sulphur, cinnabar, and mercury are used for this purpose. The application must be made in what is called a fumigating-box, in which the particular part of the body alone is enclosed with the vapor, in order that the respiratory organs may not be incommoded. The utmost precaution is requisite with the vapors of sulphur and mercury, as they are apt to occasion serious injury.

Another species of vapor-bath is called an ANIMAL BATH, known to the ancients, and of a great reputation in cases of lameness. Either the whole body of the patient was wrapped in the skin of a newly-slaughtered animal, or an opening was made, and the diseased limb inserted into the breast or belly of the animal while yet alive, or into the newly drawn blood. Sometimes smaller animals are killed, split up, and immediately applied to the diseased part.

Of GAS BATHS, the most generally used are those of sulphuretted hydrogen and carbonic acid gas, to be had at certain mineral springs. The first, mixed in small quantity with atmospheric air, lowers the irritability of the air-tubes, and affords relief in many diseases of the respiratory organs. A stronger mixture of it, brought in contact with the outer surface, is of use in disorders arising from depression of the functions of the skin. Carbonic acid gas gives a gentle stimulus to the skin, promotes menstruation, and is much used in many places in the form of half-baths. In recent times, at Ischl and other places, the vapors that arise from the mineral springs loaded with saline particles, are received in close rooms, in which the patients walk about, and allow the vapors to act upon the lungs and skin.

The terms *water-bath* and *sand-bath* have been adopted in chemistry, to signify a contrivance by which vessels that are to be heated to a certain temperature are not brought into immediate contact with the fire, but receive their heat through the medium of hot sand or water, so that the heating takes place uniformly, and overheating is avoided.

Public Baths and Laundries are establishments at which the multitudes that are without private bathing (or laundry) facilities can have the use of them for a very small

sum. In factories or other works, there is usually waste steam or waste hot water at disposal, which could, at an insignificant cost, be directed into baths for the workmen. But this is only a small part of the cure for a great evil where people are densely packed in lanes and alleys, and where the necessaries of life have to be continually struggled for. Moreover, a public bath-house and laundry provides by co-operation superior accomodation and better apparatus, with more economy than can be secured by isolated efforts.

In England, Mrs. Catherine Wilkinson, of Liverpool, in a year of cholera, bravely offered the use of her small house, and the value of her personal superintendence, to her poorer neighbors, to facilitate the washing of their clothes at a time when cleanliness was more than usually important. This led to the formation of a benevolent society about 1844, and ultimately to important municipal arrangements in various countries. In nearly all the principal towns of Great Britain such institutions are maintained at the expense of the local govt. Similar provision has been made in France and some other European countries.

In general it has been found desirable to provide two, three, or four classes of baths, and at least two classes of laundries: the second-class bathers are in some establishments thrice as numerous as the first. In the laundries the charge varies from 2 to 5 cents an hour, according to the class and the accommodation.—An establishment at Manchester—a type of those in Great Britain—has a swimming-bath, 70 ft. by 25, with a pavement of polished York stone on a foundation of concrete and cement; the sides are of porcelain tiles laid in cement. There are 32 enclosed dressing closets. Over these, on iron pillars, are 17 men's warm baths, each 8 ft. by 7. Separated from this gallery by an open passage are 5 extra first-class baths larger in size, and having shower-baths. There is a second-class swimming-bath nearly like that for the first-class; with its gallery of small baths over. The women's baths, in a different part of the building, comprise 4 first and 7 second-class. The laundry is at one end of the building, having its washing-room 64 ft. by 38, comprising 6 first-class and 30 second-class compartments, each of the former provided with three tubs, and each of the latter with two. There is provision for drying any amount of clothes in twenty minutes after the washing and wringing are completed. All the women have access to two patent wringing-machines. There is an ironing-room adjoining, fitted up with stoves. The baths, all full, hold 50,000 gallons.

The baths of the several parishes nearly or quite pay their own expenses.

The least satisfactory part of the system in its practical operation, is the fact that laundresses, boarding and lodging house keepers, and families in the middle ranks of life, use these laundries more than do really needy families; they do so because the expense is very low, not because they are unable to pay higher. It has been suggested that

BATH.

those for whose benefit the system was established are ashamed to bring their scanty, coarse, and much-worn apparel to a place where it may meet the eyes of others,

In the United States, public baths are in many seaport and lake cities; but these are simply large cheap floating baths for use during the summer, having no provision of hot water and no laundry facilities. The Lick Public Baths establishment in San Francisco was founded by the trustees of the estate of James Lick, who left a bequest of \$150,000 for the purpose. The Lick Public Baths building was formally opened 1890. Internally it is divided into 3 parts—men's and women's divisions, and the office, with necessary appendages of laundry, engine-room, etc. There are 40 bathing compartments for men. 20 for women, each compartment 8 ft. square, with corrugated iron partitions; the tubs are of porcelain, 20 in. wide, 6 ft. long, and correspondingly deep. The walls of each division of the building are inlaid with glazed porcelain tiles, and the floors are of concrete; the roof is of corrugated iron, with skylights extending the whole length of both departments. Water is supplied by an artesian well, and is pumped into tanks of the capacity of 12,000 gallons. The trustees of the bequest purchased a site for the baths 1885, for \$37,500; but the structure occupies only a portion of the ground: a large revenue will be derived from rentals of the unoccupied land. The value of the property on the day of opening the baths was: lot occupied by the building \$32,500; unoccupied land adjoining \$75,000; building and furnishings \$85,000; cash on hand \$27,500.

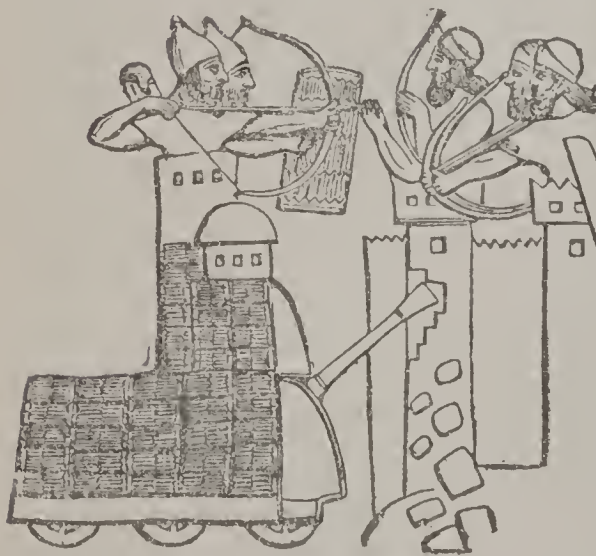
BATH, *báth*: a city, port of entry, and cap. of Sagadahoc co., Me.; situated on the w. bank of the Kennebec river, 12 m. from the ocean, 4 m. below its confluence with the Androscoggin at Merrymeeting Bay. The river is here about a mile wide with good anchorage and docks. The tide rises about 12 ft. The city extends $2\frac{1}{2}$ m. along the river and is 1 m. in breadth. It is not very regularly laid out; contains 7 banks, one daily and one weekly newspaper, eleven churches, a fine granite custom-house, and 19 public schools with 1,795 pupils. It has long been noted for its excellent schools. Bath has high rank as a ship-building port. The gunboats *Machias* and *Castine*, the ram *Katahdin*, and several torpedo boats were built here for the new U. S. navy. As the river is very deep and seldom freezes here, B. has great commercial advantages. A large number of vessels sailing to all parts of the world, are owned in Bath. Pop. (1890) 8,713; (1900) 10,477.

BATH: cap. of Steuben co., N. Y., on the Conhocton Creek, 20 m. n.w. of Corning, by the railroad. Another railroad 9 m. in length connects it with Keuka Lake. B. has five churches, three banks, Haverly Union School, the New York State Soldiers' Home, and Orphan Asylum, and different factories. Pop. (1890) 3,261; (1900) 4,994.

BATH: chief city in Somersetshire, Eng., beautifully situated in a wooded valley in the n.e. part of the co., on the



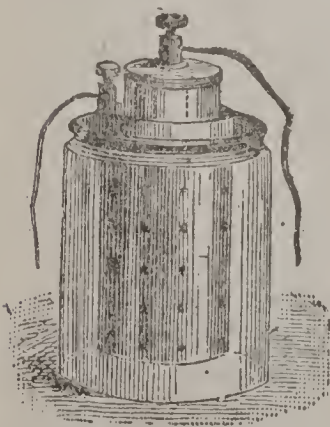
Order of the Bath.—Star, Collar, and Badge, G. C. B. (Military).



Assyrian Battering-ram (about 800 B.C.)



Fool's Bauble.



Vol. 3. Daniell Battery.



Bauble.



Battery.—Voltaic Pile.

BATH.

Avon, 20 m. from its mouth, and 106 m. w. of London. The houses are built wholly of white freestone—'Bath oolite,' worked in the neighboring quarries—bricks being entirely discarded. The city has a finer appearance than any other in England, the variety of level giving very commanding sites for its fine and regular streets, crescents, and public buildings. The beauty and sheltered character of its situation, the mildness of its climate, and especially the curative efficacy of its hot chalybeate springs, have long rendered B. a favorite fashionable resort. The springs, four in number, were known to the Romans, who built baths on the spot in the 1st c., of which extensive remains were discovered 1775. The temperature of the springs varies from 97° to 117° F.; they rise near the river bank, in the centre of the city, and discharge 184,320 gallons of water daily. The water is most useful in bilious, nervous, and scrofulous complaints, palsy, rheumatism, gout, and cutaneous diseases. Though the gayety of B. has greatly waned since the days of the prince regent, there has been a great general improvement in the city, but the population somewhat diminished during the thirty years 1851–81. It has two parks, and many public walks and open places; theatre, concert-rooms, and other places of amusement; subscription library, museum, club-house, educational institutions, etc. The Abbey Church is a cruciform structure in the latest perpendicular style, with a fine roof in the style of Henry VII.'s chapel, and a central tower 150 ft. high. About a mile to the n.w. is Beckford's Tower, 154 ft. high, built by the eccentric author of *Vathek*, now a cemetery chapel. B. returns two members to parliament. B. has no manufactures of note. Coal is found in the neighborhood. The Great Western railway from London to the west passes through the city. B. is of great antiquity; it was a Roman station called *Aquæ Solis*, at the intersection of the great Roman ways from London to Wales, and from Lincoln to the s. coast of England. Richard I. granted B. its earliest extant charter, subsequently confirmed by Henry III. and greatly extended by George III. A greater number of Roman remains have been found in and near B. than elsewhere in Britian; in 1981, a complete Roman bath was uncovered. Pop. (1901) 49,817, at times largely increased by visitors.

BATH, KNIGHTS OF THE: a most honorable order of British knighthood institute d. 1399, revived 1725, and extended 1815 and 1847—so named from the accompanying ceremony of *bathing* which used to be practiced at the inauguration of a knight, as an emblem of the purity thenceforth required of him by the laws of chivalry. The ceremony is of unknown antiquity, and is spoken of by writers of the 13th c. as an ancient custom. See KNIGHT. The earliest authentic instance of its observance in Britain, is in the time of Henry IV., who, in preparing for his coronation, made 46 knights at the Tower of London, who had watched all the night before, and bathed themselves. The last knights of the B. created in the ancient form were at

BATH.

the coronation of Charles II., 1661. From that period till the accession of the House of Hanover, the order fell into oblivion. It was revived by George I. 1725, and is now the second order in rank in England, the first being the Garter. By the statutes then framed for the government of the order, it was declared that, besides the sovereign, a prince of the



Collar and Badge of the Bath.

blood, and a great master, there should be thirty-five knights. At the conclusion of the great war, it was thought expedient, with a view to rewarding the merits of many distinguished officers, both military and naval, to extend the limits of the order, which was effected 1815, Jan. 2. But the order was still purely military, and it was not till 1847 that it was



Star of the Bath.

placed on its present footing by the admission of civil knights, commanders, and companions. The following is its present organization:

BATHGATE.

First Class.—Knights Grand Cross (K. G. C.) ; the number not to exceed, for the military service 50, exclusive of the royal family and foreigners ; for the civil service 25.

Second Class.—Knights Commanders (K. C. B.) ; military 102, civil 50, exclusive of foreigners. These, like the first, have the title *Sir*, and take precedence of Knights Bachelors.

Third Class.—Companions (C. B.) ; military 525, civil 200. They take precedence of Esquires, but are not entitled to the distinctive appellation of knighthood. No officer can be nominated to the military division of this class unless his name has been mentioned in the *London Gazette* for distinguished services in action ; and the order has never been conferred on an officer below the rank of a major, or commander in the navy.

BATH'GATE: town in Linlithgowshire, Scotland, 20 m. w.s.w. of Edinburgh. The old town is on a steep slope, the new on a more level site. In 1663. King Charles II. granted B. a charter. The remarkable gas coal called Torbanehill Mineral, the subject of much litigation, and of discussion and difference of opinion among scientific men, is worked here. B. has paraffin and paper works, but mining is the chief occupation of the inhabitants. Pop. (1881) 4,887; (1891) 5,331.

BATHOMETER—BATHOS.

BATHOMETER, *ba-thŏm'c-tēr* [Gr. *bathos*, depth; *metron*, measure]: an instrument used to determine the depth of the sea under a vessel. The density of sea-water is about 1.026, but that of the solid earth is on an average about 2½ times as great. Therefore, any given depth of the water beneath a ship attracts it less than the same thickness of rock or earth would; and the greater the depth of the water the less the attraction. Consequently, too, the weight of a ship and its cargo is greater near the shore in shallow water than out on the deep sea. Any instrument constructed with sufficient delicacy to indicate the variation of weights upon different depths of water can be made to show also the depth of the sea. C. William Siemens was the inventor of the required instrument. It consists of a vertical column of mercury in a steel tube of small bore with a cup-shaped expansion below closed with a steel-plate diaphragm. The motion caused by the varying pressure of the mercury upon this diaphragm is so magnified by a micrometer screw, having an electric tell-tale, that the depth of the water is indicated to the fathom.

BATHORI, *bá'to-rē*, **ELIZABETH**: niece of Stephen Bathori, King of Poland, and wife of Count Nadasdy, a Hungarian nobleman; born in the latter half of the 16th c.; d. 1614. Her diabolical cruelty has condemned her memory to eternal infamy. By large bribes she induced an old man-servant and two female servants to kidnap and convey to her, either by stratagem or force, young girls from the neighboring country, whom she slowly put to death in the dungeons of her castle by the most horrible tortures. It is related that on a certain occasion, having violently struck one of her victims, the blood spirted up into her own face, and, as she fancied, left the skin whiter when it was wiped off. An infernal idea instantly possessed her. She invited to a grand banquet all the young girls round about, and caused 300 of them to be put to death, being under the impression that a bath of blood would renew her youth. So monstrous a story is probably exaggerated, but it at least shows that she was conceived capable of it. Inquiry was at length made into the appalling rumors, when it was discovered that this female fiend had murdered, in cold blood, not fewer than 650 maidens. The domestics who assisted her were either beheaded or burned alive; but the countess, whose crimes merited infinitely the greater punishment, was merely imprisoned for life in her fortress of Csej, where she died.

BATH-METAL: a mixed metal, called prince's metal. **BATH-STONE**, *báth'-stŏn*, oolitic freestone extensively quarried for building purposes near *Bath*, very soft, and becoming hard on exposure to the atmosphere. **BATH-BRICK**, *-brĭk*, a well-known kind of stone used for cleaning and polishing metal utensils. **BATH-CHAIR**, a chair on wheels covered with a hood for invalids, first used at *Bath*.

BATHOS, n. *bā'thŏs* [Gr. *bathus*, deep; *bathos*, depth]: a ludicrous descent from the elevated to the mean in speaking or writing; the *profound*, ironically, in contradistinction to

BATH-STONE—BATHURST.

the *sublime*. See CLIMAX. It is of the essence of B. that he who is guilty of it should be unconscious of his fall, and while grovelling on the earth, should imagine that he is still cleaving the heavens. A good example of B. is the well-known couplet:

*And thou, Dalhousie, the great god of war,
Lieutenant-general to the Earl of Mar!*

BATH-STONE: a building stone, from quarries in the Lower Oolite, in Wiltshire and Somersetshire, Eng. It is fine grained, of a rich cream color, and is composed of about 94½ per cent. of carbonate of lime, and 2½ per cent. of carbonate of magnesium, but is free from silica. It is easily wrought in the quarry, some beds cutting almost as readily as chalk, and hardens on exposure to the air, but is not very durable. Within twenty-five years after the reparation of Henry VII.'s chapel, in Westminster Abbey, with this stone, it had begun to decompose. The name is derived from the neighborhood of several of the quarries to Bath.

BATHURST: island, off north Australia, about lat. 12° s., and long. 130° e. It is close to the much larger Melville Island, and is partly wooded, partly barren.

BATHURST: island in the Arctic Ocean, intersected by the 100th meridian, and situated immediately beyond the 75th parallel.

BATHURST: city in New South Wales, on the Western railway, 145 miles w. of Sydney, on the s.w. of Macquarie river. It is the sixth city in the state, and the seat of circuit courts and of Anglican and Rom. Cath. bps. It is lighted with gas, has a good water supply, contains many educational establishments and other public buildings, and has four newspapers. The first discovery of gold in Australia was made near B. 1851, by Edmund H. Hargraves (q.v.), a digger from California. B. was founded 1842, at which time the depredations of the aborigines were so serious that martial law was proclaimed. Two years later, there was an insurrection among the convicts, resulting in the death of two soldiers and the subsequent execution of ten of the desperadoes. B. is 2,153 feet above the sea level, and surrounded by hills. Climate excellent. Pop. (1901) 9,223.

BATHURST: town, the principal settlement of the British colony on the Gambia (q.v.): situated on a small island at the mouth of the riv Pop. about 8,000.

BATHURST, *báth'urst*, EARL (HENRY BATHURST): 1762, May 22—1834, July 26: eminent tory statesman, son of the second earl (lord chancellor 1771–78). In 1804, he was appointed master worker of the mint; in 1807, pres. of the board of trade; and was sec. of state for foreign affairs from 1809, Oct. 11 to Dec. 6. Appointed, 1812, June 11, sec. for the colonies, in the administration of the Earl of Liverpool, he held that office 16 years. In 1828, in the Wellington administration, he became pres. of the council, which office he retained till the resignation of the ministry 1830. At the time of his death, he was a teller of the exchequer, clerk of the crown, and elder brother of the Trinity House,

BATHURST INLET—BATLEY.

K.G., D.C.L., F.R.S., F.S.A., etc. He was much esteemed by his party. His son, Henry George, who succeeded as fourth earl, died 1866, and was succeeded by his brother, William Lennox, fifth earl.

BATHURST INLET: an arm of the Arctic Ocean, projecting due s. for about 75 m. into the North American continent, at 110° w. long. 300 m. from Great Slave Lake

BATHVILLITE, *báth'vil-lit* [from *Bathville*, Scot., where it occurs]: an amorphous fawn-colored, lustreless mineral, resembling rotten wood; placed by Dana in his Succinite group of Oxygenated Hydrocarbons. Its specific gravity is about 1·01. Composition: Carbon, 58·89–78·87; hydrogen, 8·56–11·46; oxygen, 7·23–9·68; ash, 0–25·32. It is akin to Torbanite.

BATHYÁNI: see **BATTHYÁNYI**.

BATHYBIUS, *ba-thīb'-i-ūs*: name given by Prof. Huxley to a glairy substance brought up in deep-sea dredgings from the bottom of the Atlantic Ocean at a depth of 650 fathoms, which he then regarded as organic and as one form of the Monera. With this view Prof. Hæckel accorded, accepting B. as a probable instance of spontaneous generation. In this somewhat tenacious slime, separating under the microscope into irregular strings, were found granular masses which were called coccoliths. The organic character of B. was from the first denied by many who maintained that the B. was a complex mass of slime, containing living organisms and the remains of dead ones; and ultimately Prof. Huxley ceased to regard it as an organic form.

BATHYMETRY, n. *bă-thīm'ēt-rī*; [Gr. *bathus*, deep; *metron*, a measure]: measurement by sounding of the depth of the sea at various places. **BATHYMETRICAL**, a. *băth'i-mēt'rī-kāl*, applied to the distribution of plants and animals along the sea-bottom which they inhabit.

BATIDES, n. plu. *băt'i-dēz* [Gr. *bātis*, a thornback; *bătōs*, a thorn]: a family of the *Elasmobranchii*, comprising the rays.

BATIGNOLLES, *bă-tēn-yōl'*: a thriving northern suburb of Paris.

BATIST, or **BATISTE**, n. *băt'ist* [Gr. *baptistēs*, a baptiser; named, according to Mahn and others, either from *Baptiste Chambray*, who claimed to have been its first manufacturer; or because it was used to wipe the heads of infants after their baptism]; a fine linen cloth manufactured in Flanders and Picardy: also a kind of cambric.

BATJAN: see **BATSHIAN**.

BATLET, n. *băt'lēt* [see **BAT** 1: Scot. *beetle*, a heavy mallet]: a flat piece of wood for beating linen in the washing.

BATLEY, *băt'li*: manufacturing town in the West Riding of Yorkshire, eight m. from Leeds. It is a municipal borough, associated for parliamentary purposes with Dewsbury, one m. distant. B. has about 50 mills and factories, being a chief seat of the heavy woolen manufactures—army

BAT MALTHÆA—BATON ROUGE.

cloths, flushings, pilots, druggets, etc. The town hall is of modern date; the parish church is in the early English style, and there are about 30 other churches, a free grammar school, a chamber of commerce, and a mechanics' institute. The borough was incorporated 1868. Pop. has increased rapidly; (1851) 9,308; (1871) 20,871; (1891) 28,719.

BAT MALTHÆA (*Malthæa vespertilio*): a fish noted for its extreme hideousness; with some resemblance to a bat and to a scorpion. It is found in the Atlantic.

BATMAN, n. *baw'măn* or *bôr'măn* [F. *bât*, a pack-saddle—from mid. L. *bastum*, a seat or saddle on which baggage may be fastened: compare Ger. *bauer*, a peasant, a countryman]: a person appointed to every company of a regiment to take charge of the cooking utensils, etc., usually an officer's servant. **BAT-HORSE**, *baw'hörs* or *bör'hörs*, the pack or baggage horse allowed to a batman. See **BAT** or **BÂT**. *Note*—*Pack animal* is one in an army which carries public property only.

BATN-EL-HAGAR (Womb of Rocks): stony district along the Nile, lat. 21°–22° n., long. 30° 40'–31° 10' e. The Nile, in this district, is often forced by the rocks into a narrow channel, and its navigation is interrupted by small islands and cataracts. B. is peopled by Bedouins and other Arabs, who live in savagery.

BATON, n. *bă'tông* or *băt'ôn*, more rarely **BATOON**, n. *bă-tôn'* [F. *bâton*; OF. *baston*, a stick]: in *her.*, a mark of illegitimate descent (variously written Battoon, Batune, and in OF. Baston); the figure commonly called the Bastard Bar (q.v.); a staff; a club; a field-marshal's staff of office, presented by the sovereign as a symbol of the authority newly bestowed; a short staff as a badge of office; a long staff carried by the drum-major of an infantry regiment; in *arch.*, a molding round the base of a column. **CONDUCTOR'S BATON**, a short slender staff or stick with which a conductor, slightly elevated in front, indicates to a band of performers by movements in the air, the time and quality of the various passages of the musical composition.

BATON ROUGE, *bat'on-rôzh*: city in La., on the e. bank of the Mississippi, 129 m. above New Orleans; formerly, and since 1880 again, the cap. of the state. As far back as 1838 it was the seat of a college. B. R. is a thriving city, and contains a national arsenal and barracks, a military hospital, an asylum for the deaf and dumb, state university, state penitentiary, an elegant state-house, 4 churches, and 2 newspaper offices. The district is very fertile, producing large quantities of cotton, sugar, and maize. B. R. was more than once the scene of important operations during the civil war. Pop. (1890) 10,478; (1900) 11,269.

BATOUM: see **BATUM**.

BATRACHIA.

BATRACHIA, n. *bă-tră-kî-ă* [Gr. *batrachos*, a frog]: the amphibians as a class; sometimes restricted to the ord. of the *Ancura*. **BATRA'CHIAN**, a. of or relating to the frog tribe: N. one of the frog tribe. **BATRACHOID**, a. *băt'rá-koyă* [Gr. *eidos*, resemblance]. formed like a frog. **BATRACHOLITES**, n. plu. *bă-trăk'ô-lîtz* [Gr. *lithos*, a stone]: fossil remains of animals of the frog kind.

BATRACHIA, *ba-tră'kî-a*, in Zoology: nearly synonymous with *Amphibia*, the name of what is now generally regarded as a distinct class of the sub-kingdom *Vertebrata*, intermediate in many respects between Fishes and Reptiles (q.v.). The B. used often to be treated as one of four orders into which the Reptiles were divided. The most important difference between the B. and the Reptiles is that the young B. undergo metamorphoses, and breathe by gills alone, in the earlier part of their life; while in their adult state they breathe either by lungs alone, or by both lungs and gills. Also the body is covered with a soft naked skin, through which water is imbibed, and through which the aëration of the blood seems partly carried on. The B. all are oviparous; their eggs are covered not with a hard shell, but merely with a soft membrane. Fecundation commonly takes place after the eggs have been deposited. It is sometimes given as a distinctive character of B., that, in their adult state, they have limbs, but in some genera these are very rudimentary, and they are altogether wanting in *Tecilia* (q.v.), a genus which is now decidedly referred to this order, because it has been found to undergo the metamorphosis from a gill-breathing to a lung-breathing state, and which Cuvier, with hesitation, placed among serpents, because the fact of its metamorphosis had not then been ascertained. The ordinary number of limbs is four, but in the *Siren* (q.v.) there are only two.—Another character frequently given as distinctive of the B., that their feet are destitute of claws, is in like manner only general, not universal.

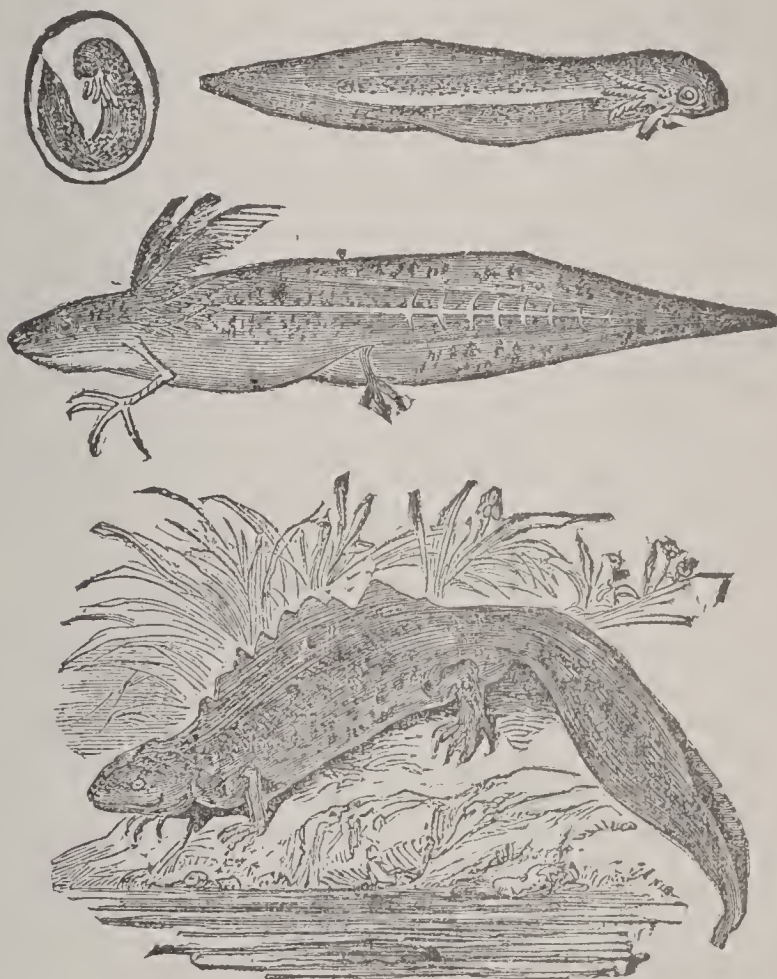
In the earlier period of life, the form of the B. is fish-like, of which the common tadpole, the young of the frog, is a familiar example; and this form some of them retain with comparatively little modification, while some of them ultimately acquire a form resembling that of lizards, with which the newts were indeed ranked by Linnæus as species of the same genus; and others, as frogs, and toads, assume a peculiar quadruped form, the tail entirely disappearing, except in the elongated coccygeal bone which represents it to the anatomist.

In their anatomy, the adult B. presents some important points of resemblance to fishes; in some important points, they differ both from fishes and from other reptiles. The skull resembles that of fishes in its general form, although agreeing rather with other reptiles in the parts of which it is composed. Teeth are often entirely wanting, sometimes they are present only in one jaw; when present, they are generally small and numerous, either in a single row or aggregated. In some of the fossil genera, however, referred

BATRACHIA.

to this order, the teeth are large.—The B. have either no ribs or mere rudimentary ribs. They have, however, a breast-bone, often in great part cartilaginous, to which some of the most important muscles are attached. They breathe air by a sort of gulping.—The heart of the B. was long believed to have only one auricle and one ventricle, but the apparently single auricle, is now known to consist of two divisions. As in the class Reptiles, only a part of the blood received from the circulating system is sent to the organs of respiration, while another part returns immediately into the circulation. See REPTILES.

In the wonderful transformations which the B. undergo, the circulation of the blood is changed in accordance with the change in the organs of respiration. These, in the earliest stage, are external gills, which appear as long colored



Newt, in successive stages.

fringes, hanging loosely upon each side of the neck. In some B., these external gills, which resemble those of the aquatic mollusca, remain till the lungs are sufficiently developed for respiration; in some, as the Axolotl (q.v.), they are permanent during the whole of life. In the greater part of the B., however, the external gills soon disappear, and are replaced by internal gills, when the tadpole exhibits its most perfectly fish-like form, its mode of progression also corresponding with that of fishes. Its respiration is carried

on essentially as in fishes, water entering the cavity of the mouth, and being forced out through the gill openings, so as to come in contact with the minute filaments of the gills. The gills are attached, as in fishes, to arches connected with the hyoid bone. In this stage of existence, the large arterial trunk which proceeds from the ventricle of the heart, sends forth, from a bulbous enlargement which it forms, as in fishes, an artery to each of the gills, and the blood after being aërated in them, is collected into an aorta, and proceeds into the general circulation. But an artery is also provided on each side for the conveyance of blood to the lungs, both the lungs and their arteries being at first rudimentary, but increasing, while the gills, on the contrary, diminish as do the blood-vessels connected with them; and the gill-breathing is gradually transformed into a lung breathing animal, no longer perfectly aquatic, as at first, or capable of existence only in water, but amphibious, or almost entirely terrestrial, and incapable of remaining long under water without coming to the surface to breathe.—While these changes take place, others no less extraordinary are going on. The tadpole which subsisted on vegetable food, and had a mouth adapted to feeding on it—a small horny beak—acquires a mouth fitted for seizing and swallowing small insects, slugs, etc., upon which the adult B. chiefly or exclusively feed, and its habits change accordingly. The mouth of the *Siren*, however, always retains a character somewhat similar to that of the tadpole.—In the course of transformation, a pelvis is formed, and limbs sprout forth, which in some B., as frogs, become very perfect and powerful. While the limbs grow, with all their bones, joints, muscles, blood-vessels, and nerves, the vertebræ, in many B., diminish in number, and the tail gradually shortens and disappears.

The extremely different characters of the adult B. suggest the idea of an arresting of the metamorphosis at different stages; but while this idea may be helpful to an understanding of the close affinities which really pervade the whole order, it must be remembered that it does not equally apply to all parts of the animal system; and that even as to those which have been particularly mentioned above, some B. in their perfect state appear to have one part in what, for convenience, may be termed a more advanced state than another; while all are adapted with equal perfection to the situations in which they are appointed to live, with reference both to their own wants and the preservation of their species.

If the limbs of the tadpole or the frog are injured or destroyed during their growth, the loss is wonderfully repaired. This power of reproducing lost limbs continues in an extraordinary degree in the adult newt (q. v.).

B. are generally inhabitants of warm or temperate climates. Those which inhabit temperate climates generally become torpid during winter. They are either almost entirely aquatic or found in moist situations. The British species are very few. In some of the Scottish isles they are unknown,

BATRACHITE—BATRACHOSPERMUM.

B. are commonly divided into two sub-orders—*Caduci-branchiata*, in which the gills (*branchiæ*) disappear (are *caducous*), and *Perennibranchiata*, in which they are persistent (*perennial*). The Perennibranchiate B. are comparatively few. Axolotl, Siren, and Proteus are examples. The Caducibranchiate B. are subdivided into *Tailless* or *Anourous*, as Frogs, Toads, etc.; and *Tailed*, as Newts, Salamanders, etc. The largest known B. are the *Sieboldia maxima* of Japan, and *Protonopsis horrida* of the Ohio, both creatures of the newt form, the former of which is more than two ft. long. An improved classification of the recent Batrachia divides them into *Trachystomata* (sirens); *Proteida* (bushy gills); *Urodela* (salamanders); *Gymnophiona* ('blind snakes,' etc.); *Anura* (frogs, toads).

Fossil remains and footprints in rock attest the existence, in former geological periods, of B. of large size. 'It is only in tertiary and post-tertiary strata that extinct species referrible to still existing genera or families of this order have been found.' These occur both of the tailed and tailless forms. One of them has been a subject of particular interest, because its remains, when discovered by Scheuchzer, in the beginning of the 18th c., were mistaken for the remains of a human being, and the discoverer enthusiastically urged them upon the attention of his contemporaries as a proof of the deluge. To this salamandroid fossil the name *Andrias* (from the Gr. for man) *Scheuchzeri* has been given.—Batrachians appeared first in the Carboniferous, and were of the extinct order *Stegocephala*, meaning covered heads, in reference to some with bony plates. They are named also Labyrinthodonts (q.v.) from the complex structure of the teeth. One species was found in a sand-filled stump of the Nova Scotia coal measures. There are many genera, of which 17 were recently described from the Ohio survey, some of them snake-like. Many footprints, in the eastern and western coal-fields, have been found. Near Westmoreland, Penn., was a series, the hind-feet $5\frac{1}{2}$ in. long, and the distance between tracks 6—8 in. *Archegosaurus* (q.v.), of Bavaria, measured $3\frac{1}{2}$ ft.

BATRACHITE, *băt'ra-kīt* [Gr. *batrachitēs*, a mineral of a frog-green color—from *batrachos*, a frog]: a mineral, according to British Museum Catalogue a variety of Olivine; but Dana makes it a variety of Monticellite.

BATRACHOMYOMACHIA, *hăt'rá-kō'mă-ō-mă'kī-ă* (the War of the Frogs and the Mice): a Greek mock-heroic poem, erroneously ascribed to Homer, with whose works it has been generally printed. Pigres of Caria, who lived in the times of the Persian wars, was named among the ancients as its author. It is a parody on the *Iliad*, in which the military preparations and contests of beasts, with single combats, intervention of the gods, and other Homeric circumstances, are described with much humor.

BATRACHOSPERMUM, *băt-ra-kō-spěr'mīm* [Gr. *batrachos*, a frog; *sperma*, a seed]: old genus of the old order *Confervaceæ*, a heterogeneous assemblage distributed by best authors into several sub-kingdoms even.

BATRACHUS—BATTALION.

BA'TRACHUS: see FROG-FISH.

BATRACOPHAGOUS, a. *băt-ra-kõf'a-gũs* [Gr. *batrachos*, a frog; *phagein*, to eat]: feeding on frogs.

BATSCHIA, *báts'chĩ-a* [named after *John George Batsch*, a prof. of botany in the Univ. of Jena in the latter half of the 18th c.]: genus of plants belonging to the order *Boraginaceæ*, or Borageworts. The few species known are pretty American plants.

BATSHIAN, *bá-che-ân'* (correctly BATJAN, *bát-yân*): one of the Molucca Islands; w. of Gilolo, between 10° 13'–0° 55' s. lat., and 127° 22'–128° e. long. It belongs to the Dutch residency of Ternate, is formed of two peninsulas, and has many mountains. B. produces gold, copper, much coal, sago, cocoa-nut trees, rice, cloves, and fine timber. There are sulphur springs. Area, 835 sq. m. Chief town, Batjan, with 200 houses, on the e. coast. Pop. of the island, 11,000, a mixed race of Portuguese, Spaniards, Dutch, and natives.

BATTA, n. *băt'tă* [Hind.]: in the British army in the *East Indies* an allowance to soldiers or public officers on active service, in addition to their pay; perquisites; wages.

BATTALINE, n. *băt'ta-lĩn* [compare BATTLEMENT]: a projection, or kind of veranda, of stone.

BATTALION, n. *băt-tăl'yõn* [F. *bataillon*—from It. *bat-tagliõnẽ*, a battalion—from *battaglia*, a battle—(see BATTLE)]: a body of soldiers of from 500 to 800 men; a body less than a regiment: BATTALION and REGIMENT used often in same sense. BATTALIA, n. *băt-tăl'yă*, the body of battalions; the order of battle; the main body in array. BATTALIONED, a. *băt-tăl'yõnd*, formed into battalions.—BATTALION is a tactical unit in military organization: it comprises the greatest number of men that can be directed and controlled by word of command of an officer. In the U. S. army it is composed as follows: 2 to 6 companies of infantry; 2 to 7 troops of cavalry, or 2 to 5 batteries of artillery. Normally the B. consists of 4 companies, troops, or batteries. Battalions are formed into regiments, these into brigades, divisions, army corps, and armies, two or more of each lower organization combined forming the next higher. The peace establishment of an infantry B. of 4 companies is 13 officers and 232 men. In time of war the strength would probably be about 13 officers and 400 men. In forming a B. the companies (troops or batteries) are arranged in line according to rank of captains, the senior commanding the right company, the second in rank the left and the third the centre. The B. is divided into two wings; the companies to the right of the centre of the battalion constituting the right wing, those to the left, the left wing. If the number of companies is uneven, the right wing contains the greater number of companies. If a B. is composed of fractions of different regts., the companies of each regt. are arranged as above explained; and the fractions are then arranged in line from right

BATTAS—BATTEL.

to left according to the rank of the senior officer present in each, the senior on the right. Ordinarily the B. is under command of a major.—See REGIMENT: INFANTRY: ETC.

In the British army, the term B. is applied only to the tactical unit of infantry. Its war establishment is 30 officers, and 1,066 warrant officers, non-commissioned officers and men; total 1,096. The B. is composed of 8 companies; most regts. have only one B. The peace establishment is variable. Most of the battalions at home are kept at a reduced number of 520, rank and file; the guards at 750; battalions next for foreign service at from 700 to 820, and the battalions in India at 820.—The German infantry regt. has 3 field battalions, one being called the fusilier B. Each B. consists of 4 companies; its peace strength is 552 of all ranks, its war strength 1,022.—In the French army, most regts. have three active battalions, and one *depôt* B.; 4 regts. of Zouaves and 3 of Turcos have each 4 battalions and a weak *depôt* B. There are besides 36 rifle battalions (Chasseurs), and 3 battalions of light Algerian infantry (Zephyrs). The peace strength of a regt. is about 2,000.—In the Austrian army, an infantry regt. is composed of 5 field battalions of 4 companies each, and 1 *depôt* battalion.

BATTAS, *bat'taz*, or BATAKS: a non Mohammedan people inhabiting Sumatras, of Atchin; claiming to be the first settlers of Sumatra. They believe in a supreme creator, and in spirits good and evil. The B. are light-brown, of middle stature, have somewhat prominent features, and long hair. The men are lazy, and engage in hunting, while the women grow rice, collect pepper for trade, weave and dye cloth. They make white earthenware, iron implements, and metal ornaments. their houses are of wood, and the villages have earthen walls. The B. are nominally governed by the rajahs of Bata Simamore, Salindong, and Būtar. The language is a Malay dialect, written on bamboos, in a peculiar alphabet, from the bottom upwards, but laid horizontally, and read from the left. A man may have many wives, paying a dowry of ten buffaloes for a chief's daughter, and five for one of lower rank. Cannibalism still prevails (except in Dutch territory), the victims being only murderers, prisoners of war, and adulterers. Women were never eaten.

BATTASZEK, *bát-tás-sék'*: market-town of Hungary, county Tolna, on the w. of the Danube. Pop. (1880) 7,095.

BATTEL, a. *băt'tl* [Scot. or OE., *bat*, condition of body: Icel. *batna*, to get better: probably another spelling of *batten*, to fatten]: in *Scot.* and *OE.*, consisting of pasture of short, close, rich grass; fruitful; fertile: V. to grow or make fat. BAT'TELS, n. plu. the expenses of students at Oxford for provisions from the buttery; the rations or commons allowed. BATTELER, n. *băt'tl-ér*, a semi-commoner at Oxford.

BATTEL, TRIAL BY, or WAGER OF BATTEL, a legal personal combat; relic of ancient barbarism, abolished by law in England, in the reign of George III. It affords illustration

BATTEL.

of a principle peculiar to English law, as distinguished from the legal systems of other countries.

The trial by B. was a proceeding by way of appeal, and it obtained in civil and criminal cases, and in military matters, to which, indeed, it was more appropriate. It consisted of a personal combat between the parties in presence of the court itself; and it was grounded on the idea of an appeal to Providence, the expectation being, that Heaven would give the victory to the innocent or injured party. In civil cases, the B. was waged by champions, and not by the parties themselves; but in criminal cases, the parties fought in person, unless the appellor were a woman, a priest, an infant, or a man of the age of sixty, or lame, or blind, all of whom might refuse the wager of B., and compel a trial by jury. Peers of the realm also could not be challenged to wage B., on account of their personal dignity, nor, by special charter, could the citizens of London, fighting being considered foreign to their education and employment. Whether by champions or in person, the mode of proceeding was the same. The appellee, or defendant as he might be called, threw down his glove, and declared that he would prove his right, or defend himself with his body. The appellor, or prosecutor, in accepting the challenge, took up the glove, and replied that he was ready to make good his appeal, body for body; and thereupon the parties, holding each other's hands, joined issue before the court in a very formal and solemn manner. The weapons used were batons or staves an ell long, and a four-corned leathern target, and the combatants were obliged to swear that neither of them would resort to sorcery or witchcraft! The B. lasted till the time for appearance of stars in the evening, and the party who by that time had either killed or got the better of his opponent, was considered the successful suitor of justice. In a charge of murder, if the accused was slain, it was taken as proof of his guilt, and his blood was attainted; and if so far vanquished as not to be able or willing to fight any longer, he was adjudged guilty, and sentenced to be hanged immediately!

So late as the year 1818, this barbarous procedure was solemnly decided by the court of king's bench to be a valid and legal mode of trial, which the king's subjects were free to adopt! Of course, the principle was, that all laws, no matter how unsuitable to the times, could be enforced, unless expressly repealed by act of parliament. As a matter of curiosity, we may give the names of the parties (they were of the laboring-class) who seriously submitted their contention in the above form before Lord Chief-justice Ellenborough and his brother-judges of the period. The case is that of *Ashford v. Thornton*, and is reported in the first vol. of *Barnwall and Alderson's Reports*, p. 405. The court decided in favor of the validity of the trial, one of the judges remarking that sufficient had not been stated to induce their lordships to refuse the B., and another more plainly and unequivocally observed that the defendant was 'entitled to this his *lawful* mode of trial.' But Lord Ellenborough put the matter more clearly by stating, that 'the general law of the

land is in favor of the wager of B., and it is our duty to pronounce the law as it is, and not as we may wish it to be; whatever prejudices, therefore, may justly exist against this mode of trial, still, as it is the law of the land, the court must pronounce judgment for it.' Happily, the pugnacious litigant who obtained this judgment was induced to go no further, and the shocking ordeal was abolished by law.

In Scotland, probably the matter would have been differently disposed of; for the judges there, following the doctrine of the Roman law, would have held the proceeding in desuetude and obsolete, and there the matter would have ended. Mr. Rush, the then American envoy to the British court, thus justly remarks on this case in his *Residence at the Court of London* (pub. 1833). 'To repeal laws belongs to the legislature. Courts expound and apply them. Free government is complex, and works slowly; tyranny is simple, and does its work at once. An absurd law may sleep in a free code, because overlooked; but whilst there, it is the law. It is so, I suppose, that we must reason; and generally, the reason would be right. Yet it might have been thought that, in a case like this, long disuse added to obvious absurdity, would have worked the silent repeal of the law, according to the doctrine of desuetude under the Roman code.'

Montesquieu, in his *Spirit of Laws*, book 28, chap. 20, 22, very ingeniously and plausibly deduces from trial by B. the modern practice of duelling and the so-called laws of honor. See ORDEAL.

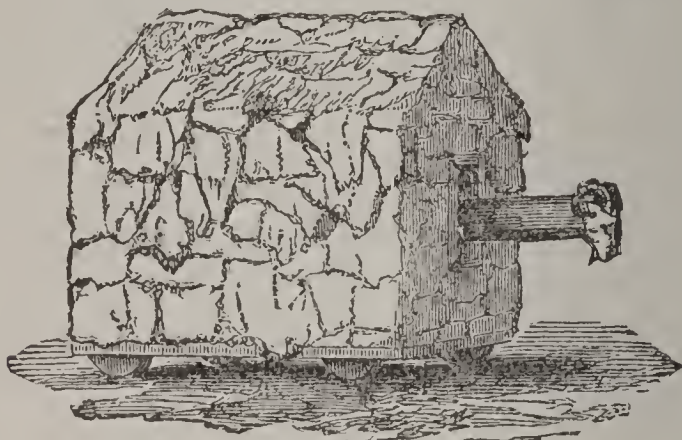
BATTEN, v. *băt'tin* [Goth. *gabatnan*, to thrive: Icel. *batna*, to get better]: to grow or become fat; to fatten; to live in ease and luxury. BAT'TENING, imp. BATTENED, pp. *băt'tnd*. BATTENS, n. plu. *băt'tns*, a student's expenses for board at Oxford—also spelt BATTELS (see under BATTEL).

BATTEN, n. *băt'tn* [F. *bâton*, a staff or stick—see BAT 1]: a thing made of a bat or stick, as *bat-en*, made of bats; a small piece of wood or scantling, used by carpenters and plumbers. BATTENS, sawn fir timber, of smaller dimensions than the kind called planks. B. are usually from 12 to 14 ft. long, 7 inches broad, and $2\frac{1}{2}$ inches thick. Cut into two boards ($1\frac{1}{4}$ inch thick), they are used for flooring; cut into three boards, they are put on roofs below slates; in narrower pieces, they are put upright on walls for fixing the laths for plastering. BATTEN, v. to fasten or form with battens. BATTENING, imp. *băt'ning*: N. narrow flat rods of wood fixed to the wall on which the laths for the plaster-work are nailed. BATTENED, pp. *băt'tnc̃*. BATTENING DOWN THE HATCHES, long narrow slips of wood nailed to the coamings or raised rim around a ship's hatch to secure the tarpaulins placed over the hatches, as in stormy weather. BATTEN, the swing utensil of a loom, by which the weft or woof is struck home, and in which the shuttle runs. B. and *lay* or *lathe* are synonymous, B. being the English name, and *lay* the Scotch: see WEAVING.

BATTER, v. *băt'tër* [F. *battre*, to beat—from L. *bat-tuëre*; mid. L. *batërë*, to beat or strike]: to beat with re-

BATTER—BATTERSEA.

peated blows; to beat with great force or violence; to wear out with service: N. a mixture of various ingredients beaten together to a paste. BAT'TERING, imp.: ADJ. used to batter with. BATTERED, pp. *băt'têrd*: ADJ. worn out by hard wear and tear. BATTERER, n. *-têr-êr*, one who. BATTER-PUDDING, a pudding made of flour, milk, eggs, butter, and salt. It is baked or boiled. BATTERING-RAM, an ancient military engine for beating down walls, consisting of a beam of wood with a mass of bronze or iron on one end, resembling the head of a *ram* [in Lat. *aries*]. In its simplest form, it was borne and impelled by the hands of the soldiers; after-



Battering-ram.

wards, it was suspended in a frame, and made to swing. Another form moved on rollers. The alternating motion was communicated by ropes. To protect those working it, a wooden roof (*testudo*) was constructed over it, and the whole was mounted on wheels. The beam of the ram varied from 60 to 120 ft. in length, the head sometimes weighed above a ton, and as many as 100 men were employed in impelling the machine. When the blows were long enough continued, hardly any wall could resist. When or where it was invented is unknown. It is mentioned by Ezekiel. The Romans derived it from the Greeks.

BATTER, *băt'têr*, in Architecture: to slope inwards; applied to the walls of towers, which are smaller at the top than the bottom. The walls of wharfs, and those built to support embankments and the like, usually batter. BATTER-RULE, a plumb-line designed to regulate the batter, or slope of a wall not meant to be vertical. The plumb-line itself is perpendicular, but the edge is as much to the side of this as the wall is intended to slope.

BATTERSEA, *băt'têr-sê*: a south-west suburb of London; in Surrey, on the s. bank of the Thames, at the bridge to Chelsea, which is nearly opposite. It lies in B. Parish, which is partly laid out in market-gardens for London, and has many manufactories. The church has a monument to the celebrated Lord Bolingbroke. The flats, called B. Fields, once famed as a rich botanical station, are now a public park, and railways have much changed the locality. Adjacent to the park, the Thames is crossed by B. Bridge (lately rebuilt), Albert Bridge, Chelsea Suspension Bridge, and a railway bridge. Pop. (1901) 168,896

BATTERY.

BATTERY, n. *bă't'ér-î* [F. *batterie*, a fight, a battery—from *battre*. to beat]: in *mil.*, a parapet or wall breast-high, thrown up to protect the gunners and others, and as a position for guns; any number of guns and mortars ranged in order; an apparatus for generating the electric fluid. MASKED BATTERY, a battery screened from the sight of the enemy by any contrivance.—*Battery* in military affairs is a term having several significations. It is used to designate the artillery organization which corresponds to the company in infantry, and the troop in cavalry; it is used to designate also a number of pieces of artillery in position for service; likewise the place in a work where they may be located: further it denotes certain positions in the manœuvres with individual pieces of artillery. Wherever this term is used, its precise meaning must be determined from the context.—See FORTIFICATION: ARTILLERY: ORDNANCE: also the cross-references under these; and the many specific titles. A B., in field operations, consists of two or more (usually 6) pieces of ordnance, with the necessary gun-carriages, ammunition-wagons, horses, artillerymen, and officers. In the United States army, the *personnel* of a B., of 6 pieces, of siege guns equipped for field service, is as follows: 1 capt., 4 lieuts. (two 1st lieuts. and two 2d lieuts.), 9 sergeants, including first-sergeant, quartermaster, stable and veterinary sergeants, 12 corporals, 6 artificers (3 blacksmiths, 2 saddlers, and 1 wheelwright), 2 trumpeters, 1 guidon, 75 drivers, and 78 cannoneers—total, 5 officers and 183 men. The *matériel* for such a B. comprises 6 pieces, 12 caissons, 1 spare carriage, 1 battery-wagon, and 1 forge, besides the baggage and transportation wagons. To complete this equipment requires 23 saddle-horses, and 168 horses, 18 being spare horses for replacing those which may become unserviceable. Two hundred rounds of ammunition are carried for each piece, 96 in the limber and caissons, and remainder in the transportation-wagons. The platforms for the pieces, when carried, are on transportation-wagons in the baggage train. There are also carried with each B. an immense number of tools and small articles; besides stores for blacksmiths, saddlers, and wheelwright for making repairs, and the necessary horse medicines. These supplies are carried in the battery and forge wagons as far as practicable. A *horse B.* is one in which the cannoneers are mounted on horses so as to be able to move with great celerity.

A B., in fortification, is a row of large guns of any number from two upward, mounted on an earthwork or other platform. It differs from an artillery or field B. in having no horses or vehicles immediately belonging to it. Siege-guns are usually placed in or on such batteries; and are valuable adjuncts in either the attack or defense of a position. The fortifications on and within the walls of a stronghold generally obtain other names than that of batteries, though particular rows of guns in certain places may be so called. Military engineers distinguish many different kinds of batteries, according to the nature of the duty that they are to fulfill, or the manner of their con-

BATTERY.

struction. An *elevated* B. has the parapet raised above the ground; the earth for forming the parapet being obtained by making a ditch in front. A *half sunken* B. has the terre-plein (or floor) slightly sunk below the level of the ground. A *sunken* B. has the sole (or bottom) of the embrasures on a level with the ground. These batteries, and the guns mounted in them, are adapted to different modes of fire, and are constructed with that end in view. A *siege* B. consists of a range of heavy guns, for silencing the enemy's fire, ruining parapets and buildings, and making a breach through which infantry may enter. A *barbette* B. is especially elevated, and the pieces are fired over the parapet and not through embrasures. The accuracy of modern artillery fire increases the danger to the guns with which a work is armed, and the disabling of a piece by the enemy's fire is of greater moment now than formerly when the guns were of smaller size and could more readily be replaced. In order to protect the piece as well as the men, *depressing* carriages have been invented for use with this B. These permit the gun to be fired over the parapet as usual, and then, on recoil, allow the piece to descend behind the parapet, where it can be reloaded in safety. The *King* carriage, invented by Lt.Col. W. R. King, corps of engineers, U. S. A., is found to do this very efficiently. The lower part of the gun-carriage inclines downward and to the rear at an angle of about 30° to the horizon. The upper part of the carriage, sliding on the lower, is attached to a counter-poise by a band composed of wire ropes. This counter-poise is a heavy mass of metal descending into a well in front of the gun-carriage. The *Moncrieff* (English) B. is of the same kind. *Enfilade, en revers, en écharpe, ricochet, cross, oblique*, etc., batteries differ chiefly in the direction in which they pour out their fire. The distinction between *gun*-batteries, *howitzer*-batteries, and *mortar*-batteries, depends on the kind of ordnance employed. In a mortar B. the mortars must be placed far enough in rear of the parapet so that the blast will not injure the interior slope.

These batteries are all nearly alike in general principle of construction. They consist primarily of an *épaulement*, or built-up shelter, behind which the guns are placed; the platform on which the guns actually rest may or may not be above the ordinary level of the ground, according to the nature of the battery. The *épaulement* or parapet is of great thickness, to resist the effects of the fire against it. The thickness at the top is usually 12 to 20 ft.; for it is found that a 24-pounder ball will penetrate 18 ft. of earth. The guns are placed 16 to 22 feet apart, behind the parapet. Some batteries are straight, with the guns all parallel; others may be portions of a triangle (*redan*) or of a polygon, and the earthwork must be constructed accordingly. There is generally a ditch 12 to 20 ft. wide outside the earthwork, and the depth from the crest of the parapet to the bottom of the ditch is 12 to 16 ft. It is from this that the earth for the parapet is obtained, and the amount of the excavation depends on the quantity of earth needed. For

BATTERY—BATTYANYI.

gun and howitzer batteries there are usually embrasures through which the firing takes place; but mortar batteries have no embrasures. Sometimes the épaulement is thrown up loosely, in haste; but for better batteries fascines, gabions, and sand-bags are largely employed. The main structure is lined with fascines 9 ft. long, and the embrasures are lined with other fascines 18 ft. long—40 to 50 of both kinds being required for each gun. The fascines are long bundles of brushwood, weighing 30 to 200 lbs. each. Sometimes sand-bags are used instead of fascines, each bag containing about a bushel of sand or earth; and sometimes gabions, which are wicker cylinders filled with earth. A 6-gun sand-bag B. requires nearly 8,000 sand-bags.

BATTERY, *n.* *băt'tērĭ* [see BATTERY 1]: in *law*, any unlawful beating or wounding, or other wrongful physical violence or constraint inflicted on a person—either in wilfulness or carelessness: see ASSAULT AND BATTERY.

BATTERY, ELECTRIC and GALVANIC: see ELECTRICITY: GALVANISM.

BATTERY, FLOATING: see FLOATING BATTERY.

BATTYANYI, *bőt'yân-yē*, BALTHASSAR VON: lived in the latter half of 16th c., head of the B. family, which was one of the oldest, richest, and most celebrated families of the Hungarian magnates, tracing its origin as far back as the invasion of Pannonia by the Magyars, 884, and which has given to Hungary many warriors and statesmen. The surname is derived from lands obtained in the 14th c. Balthassar fought with distinction in the Turkish wars, and constantly maintained at his own expense 1,200 infantry and 500 cavalry.

BATTYANYI, CASIMIR, Count: 1807, June 4—1854, July 13. He was minister of foreign affairs in Hungary during the insurrection in 1849, in which he also distinguished himself as a military governor. After the catastrophe of Vilagos, he fled with Kossuth, into the Turkish territory, where he remained till 1851. He died at Paris.

BATTYANYI, CHARLES, Prince of B., Lieu. Field-marshal of the Empire: distinguished in the Bavarian War of Succession, and particularly by a victory over the French and Bavarians at Pfaffenhofen, 1745, Apr. 15.

BATTYANYI, LOUIS, Count: 1809–49, Oct. 6; b. Presburg. He espoused the national cause, yet seeking to maintain the connection with Austria and his allegiance to the Austrian sovereign, was appointed pres. of the ministry, when Hungary obtained a ministry of its own, 1848, March. His ability was not equal to the goodness of his intentions, in the difficult and embarrassing circumstances in which he was called to act. He did not hold the office long, and afterwards took part in public affairs, chiefly as a member of the diet, and with great moderation. Yet, after the Austrians entered Pesth, he was arrested, 1849, Jan., and was put to death under sentence of martial law. His condemnation was unexpected, and awakened the more sympathy, because all men regarded it as unjust.

BATTLE.

BATTLE, *n.* *băt'tl* [*F.* *bataille*; *It.* *battaglia*, battle—from *mid. L.* *battērē*, to beat as with a stick: *mid. L.* *batūliū*, a battle]: a fight between enemies; an encounter between armies: *V.* to contend in fight. **BATTLING**, *imp.* *băt'tling*: *N.* conflict; fighting. **BATTLED**, *pp.* *băt'tld*: **ADJ.** furnished with battlements. **BATTLE-ARRAY**, *n.* *băt'tl-är-rä'*, order of battle. **BATTLE-AX**, *-äks*, a sharp ax, with a long handle, formerly used in war; a halberd. **BATTLE-CRY**, shout of troops when engaging in battle. **BATTLE-FIELD**, the place where a battle between armies has been fought. **BATTLE-FRONT**, front presented by an army drawn up in order of battle. **BATTLE-ROYAL**, battle of game cocks in which more than two are engaged; a *mêlée*, in which more than two persons fight each other with fists and cudgels. **BATTLE-SONG**, song sung by troops to animate them when proceeding to battle. **BATTLE-WORD**, words, signals, or watchword given forth by a leader to his followers when engaging in battle. **PITCHED BATTLE**, a battle deliberately arranged, and fought out between contending armies. **WAGER OF BATTLE**, one of the forms of ordeal or judicial appeal of the old law of England, which consisted in an armed contest between the plaintiff and defendant before the court, the victor being declared the gainer of his case in law—finally abolished 1819: see **BATTEL**, **TRIAL BY**. **DRAWN BATTLE**, one in which neither side gains.—**SYN.** of 'battle, *n.*': combat; engagement; action; fight; conflict.

BATTLE: town in *e. Sussex*, 6 *m. n.w.* of Hastings, where the country rises in wooded swells. It consists of one street, built along a valley extending from *n.w.* to *s. e.* Till of late, *B.* was noted for its manufacture of gun powder, known as *B. powder*. It was anciently called *Hetheland* or *Epiton*, and derives its present name from the battle of Hastings, fought on the heath between it and Hastings, 1066, Oct. 14, when the Normans, under William the Conqueror, finally overthrew the Saxon dynasty in England. William, to commemorate his victory, founded 1067, on the spot where Harold's standard was taken, a splendid abbey, which was endowed with all the land within a league of it. The abbey had the privileges of a sanctuary, and the Conqueror's sword and a roll of his barons were deposited in it. The existing ruins of *B. Abbey*, which belong to a building erected after the original abbey, occupy three sides of a quadrangle, and are a mile in circumference. *Pop. of B.* (1881) 3,319; (1891) 3,152.

BATTLE: combat between large masses of troops, or whole armies. Every *B.* ought to have for its object the determination, if possible, of the whole contest, or at least the effecting of some important step to that end. It is therefore the aim of a general to bring about an engagement at the decisive point. This constitutes *Strategy*, while *Tactics* is concerned with the handling of the troops in the actual battle. Victory on the battle-field is not enough for a general; it is only by following up his victory to the annihilation, if possible, of the beaten army, that its fruits are secured. **ORDER OF B.** is the particular way in

BATTLE-AX--BATTLE CREEK.

which the several corps of different arms are disposed for entering into an engagement. It varies at different times, and is modified according to locality.

No general account of a B. can be given. See ATTACK: ARTILLERY: CAVALRY: INFANTRY: CHARGE: FLEET: GUNNERY: TACTICS etc. For the more important battles and their causes and results, see the names of their localities.

Considered in their political relations, the importance of battles is not always in proportion to their magnitude. 'There are some battles which claim our attention, independently of the moral worth of the combatants, on account of their enduring importance, and by reason of their practical influence on our own social and political condition. . . . They have for us an actual and abiding interest, both while we investigate the chain of causes and effects, by which they have helped to make us what we are; and also while we speculate on what we probably should have been, if any one of those battles had come to a different termination.—Creasy's *Fifteen Decisive Battles of the World, from Marathon to Waterloo*. (Since Waterloo, the most decisive have been, Gettysburg 1863, Sadowa 1866, Sedan 1870.)—Creasy's list is as follows: to it might well be added, Actium B.C. 31, Lepanto A.D. 1571, Trafalgar 1805.

B. C.

490. Battle of Marathon.

413. Defeat of the Athenians at Syracuse.

331. Battle of Arbela.

207. " " the Metaurus.

A.D.

9. Defeat of the Romans under Varus.

451. Battle of Chalons.

732. " " Tours.

1066. " " Hastings.

1429. Joan of Arc's victory at Orleans.

1588. Defeat of the Spanish Armada.

1704. Battle of Blenheim.

1709. " " Pultowa.

1777. Defeat of Burgoyne at Saratoga.

1792. Battle of Valmy.

1815. " " Waterloo.

BATTLE-AX: a weapon much used by the early northern nations. Celtic and Scandinavian, requiring great strength in its use. Some axes were held with one hand, some with two; the former kind could be wielded equally by horse and foot, but the latter was for foot-soldiers only. The B. had a longer handle, and a broader, stronger, and sharper blade than the common ax. During the middle ages, and somewhat earlier, it was much used in sorties, and to prevent the escalading of a besieged fortress. The *pole-ax* differed but little from the battle-ax. The *black bill* and *brown bill* were a sort of halbert, having the cutting part hooked like a woodman's bill, with a spike projecting from the back, and another from the head. The *glaive* was a kind of pole-ax or bill used by the Welsh.

BATTLE CREEK: chief town (not the cap.) of Cal

houn co., Mich., on the Kalamazoo river, at the mouth of Battle Creek; which furnishes here abundant water power. It lies at the point where the Michigan Central railroad intersects with the Chicago and Lake Huron railroad, 121 m. w. of Detroit, 163 m. e.n.e. of Chicago. It has 9 churches, 3 banks, 3 flouring-mills, iron-factories, machine-shops, and many other important manufactories, an opera house, a high school, an Adventist college, and the Potter House, a large hotel, and a fine public school building that cost \$80,000. There are 1 daily and 4 weekly newspapers. Pop. (1870) 5,838; (1880) 7,069; (1890) 13,090; (1900) 18,563.

BATTLEDORE, n. *băt'tl-dŏr* [Sp. *batador*, a washing-beetle: F. *battre*; Sp. *batir*, to beat]: a toy used in play, with a handle and flat part, for striking a shuttle-cock.

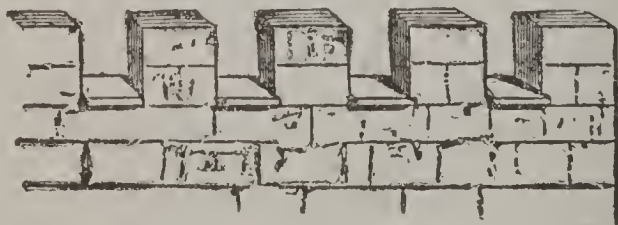
BATTLEFORD, *băt'tl-ford*: settlement in Saskatchewan, Northwest Territory of Canada, at the junction of the Battle river with the Saskatchewan, a little north of the route of the Canadian Pacific railway. The territory was organized as a part of the dominion 1875, and some government buildings have been erected at B. The country near is rolling prairie without tree or bush. Pop. (1901) 513.

BATTLEMENT, n. *băt'tl-měnt* [OF. *bastiller*, to fortify]: a wall pierced with openings, or made notch-like, for



Early English Traceried Battlement.

military purposes, or for ornament; a notched or indented parapet fortification. The rising parts are called cops or merlons; the spaces by which they are separated, *crenels*, *embrasures*, and sometimes loops. The object of the de-



Simple form of Battlement.

vice is to enable the soldier to shelter himself behind the merlon, while he shoots through the embrasure. The bas-reliefs of Nineveh, and the Egyptian paintings, testify to its antiquity. **BAT'TLEMEN'TED**, a. having battlements.

BAT'TLE-PIECES: paintings representing battles. The modern mode of warfare is less favorable for this branch of art than the ancient, where personal valor had more room to display itself. Among the greatest paintings of this kind are the battle of Constantine, sketched by Rafael, and executed by Giulio Romano; Lebrun's battles of Alexander; and the battle of the Amazons by Rubens. In lesser engagements Antonio Tempesta, Hans Snellink, Pet. Snyders, Fulcone, Phil. Vernet, Wouverman, etc., are

distinguished. In the U. S. Rothermel's *Gettysburg* and Walker's *Battle Above the Clouds* are greatly prized.

BATTLESHIP: the heaviest type of modern war vessel, designed as a line-of-battle fighter, to give and take the hardest blows of combat. It is heavily protected with armor plate and carries guns up to 16-inch bore. In the reconstruction of the U. S. navy special attention has been given to this class of ship, and 1903, Jan. 1, there were in commission or under construction 20 sea-going battleships, the *Alabama*, *Connecticut*, *Georgia*, *Illinois*, *Kearsarge*, *Kentucky*, *Louisiana*, *Maine*, *Missouri*, *Nebraska*, *New Jersey*, *Ohio*, *Rhode Island*, *Virginia*, *Wisconsin*, *Indiana*, *Iowa*, *Massachusetts*, *Oregon*, and *Texas*; the last five having done remarkable service during the war with Spain in 1898. These vessels have a displacement of from 10,000 to 16,500 tons and an average speed of over 17 knots per hour.

BATUM, or **BATUM**, *bâ-tôm'*: former Turkish fortified port, now a Russian possession and chief port of the province of the Caucasus, on the e. shore of the Black sea. The inhabitants are mostly Russians. The Berlin congress (1878) sanctioning its cession to Russia, made it a free port; but this stipulation was repudiated by Russia 1886. The Russians have spent \$2,500,000 on a new harbor, one of the best on the Black sea. A powerful series of batteries defends it. The petroleum product of the Caspian region (see **BAKU**) finds here its chief outlet over a railway 560 m. long. B. is also the terminus of the Transcaspian railway, nearly 900 m. long, a channel for the trade of Central Asia. Immense oil storage accommodations are provided, and a fleet of 30 tank-steamers ply to various European ports. Exports to the United States (1891) \$912,418, the principal article being licorice root.—Pop. (1882) 8,671; (1897) 28,512.

BAUBLE, n. *baw'bl*: see **BAWBLE**.

BAUCIS, *baw'sis* [L. *Baucis*, the wife of **Philemon**; any poor pious old woman]: an asteroid, the 172d found; discovered by Borelle, 1877, Feb. 5.

BAUD, *bô*: town of the dept. of Morbihan, France; on the Evel, 20 m. n.w. from Vannes. It has some trade in grain, cattle, hemp, butter, and honey. Near B. is a statue of granite, known as the *Venus of Quinipily*, worthless as a work of art, but remarkable for its history. Its origin is unknown, but it is supposed, from its Egyptian character, to be a Gallic Isis. Down to the 17th c., it was worshipped with foul rites, and even now is regarded with superstitious veneration by the peasantry. It appears to have been first called Venus in inscriptions on the pedestal set up in 1689. Pop. of B. abt. 2,000.

BAUDELAIRE, *bôd-lâr'*, **PIERRE CHARLES**: 1821–67, Aug. 31; b. Paris: a poet belonging to the extreme left of the romantic school of which Gautier was the head. He was known first as a critic. *Les Fleurs du Mal*, a poem pub. 1857, secured him a name, but brought on him a public prosecution; and parts of the work

were condemned as morally unfit for publication. Both the subject and the manner of all his work displayed intense opposition to the rules of French classicism; but B. was distinguished from his fellow-romanticists by his delight in positively unpleasant subjects, and by the unnatural extravagance of his fancy. He wrote also *Gautier*, (1859), *Les Paradis Artificiels* (1860), *R. Wagner* (1861), and some volumes of admirable criticisms. His French rendering of the works of Edgar Allan Poe is one of the most perfect of translations.

BAUDKIN, *bawd'kin*, or BAUDEKIN, or BAWDEKIN, n. *baw'di-kin* [so named from its supposed original place of manufacture, *Baldacca* or *Bagdad*, modified under the influence of It. *baldachino*, a rich gold stuff, a canopy]: a rich silk stuff interwoven with gold thread, and embroidered—formerly used for garments by the nobility, for church vestments, and altar-hangings, and canopies, whence the name *baldachin*, which see.

BAUER, *bow'ér*, BRUNO: 1809, Sep. 9—1882, Apr. 13; b. Eisenberg, duchy of Saxe-Altenburg: biblical critic and philosopher, belonging to the extreme school of German rationalism. He studied at the Univ. of Berlin, and early chose as his department of study, the scientific criticism of Scripture—a criticism based on the principle that the Bible is to be studied as a merely natural product with no reference to its real or supposed supernatural origin. In 1839 B. became a *privat-docent* in the Univ. of Bonn; but in 1842 was forbidden to deliver any more theological lectures, whereupon he removed to Berlin. He passed through various stages of anti-supernaturalism. At first, he contented himself with believing that the substance of the Christian religion might be extricated from the entanglements of a confused and erroneous system of interpretation. This idea runs through his earliest works, his *Criticism of Strauss's Life of Jesus* (1836), his *Journal of Speculative Theology* (1836–38), and his *Critical Exposition of the Religion of the Old Testament* (1838). To a more advanced stage belong his *Doctor Hengstenberg* (1839), and *The Evangelical Church of Prussia and Science* (1840). In the latter of these works, B. sought to prove that true philosophic union is the dissolution of the outward dogmatic church in the realm of the universal and free self-consciousness. In his *Critique of the Evangelical History of John* (Berna. 1840), and *Critique of the Evangelical Synoptics* (Leip. 1840), he attempted to show that the so-called facts of the gospel never had a historical existence, and that the four gospels were simply the product of the human self-consciousness. B. considers Strauss, a mere apologetical theologian, a comparatively orthodox writer, and regards his conclusions with the contempt of one who has reached a far higher elevation, while he conceives that his own special work in this world has been to strike off the last head of the Hydra of the Tradition-hypothesis. The attacks upon him which followed brought about a complete rupture between him and the church; the consequence of which was a brochure

BAUGE—BAUHINIA.

entitled *The Question of Liberty, and my own Private Affairs* (Zurich, 1843); and *Christianity Unveiled* (Zurich, 1843). About this time he broke with his old friends, the liberals, by writing a pamphlet against the emancipation of the Jews, *Die Judenfrage* (Brunswick, 1843), which forms the transition point to the third period of B.'s intellectual activity, in which he seems to have abandoned theology altogether, and occupied himself exclusively with literature and political philosophy. The number of his writings in this department is very great. The principal are, *History of the Politics, Civilization and Enlightenment of the 18th Century* (Charlottenburg, 1843-45); *History of Germany during the French Revolution and the Reign of Napoleon* (Charlottenburg, 1846); *History of the French Revolution until the Establishment of the Republic* (Leip. 1847); *Western Dictatorship; The Actual Position of Russia; Germany and Russia; Russia and England*. The prominent idea in all his works of this period is, that the failure of the popular and national struggles in the 19th c. results from the essential weakness of the 'enlightenment' of the 18th c. More lately B. returned to theology. In 1850-1, appeared his *Critique of the Gospels and the History of their Origin*, and his *Critique of the Epistles of St. Paul*, the latter of which the author considers wholly apocryphal, and written during the 2d c. B. composed various other treatises on important points of history, theology, and politics. All his writings exhibit great learning, industry, research, and acumen, yet a capacity destructive rather than constructive. His influence has largely waned.

BAUGE, *baw-jä'* [from *Baugé*, a town in France]: drugget of thick-spun thread and coarse wool, manufactured in Burgundy.

BAUGÉ, *bō-zhā'*: town in the dept. Maine-et-Loire, France, 23 m. e.n.e. of Angers. The English, under the Duke of Clarence, were defeated here 1421. There are manufactures of linens and woollens. Pop. (1881) 3,324.

BAUHINIA, *baw-hīn'ī-a*: genus of plants of the nat. ord. *Leguminosæ*, sub-ord. *Cesalpineæ*. The upper petal is somewhat remote from the rest. The leaves are generally divided into two lobes. The species are natives of the warmer regions of both hemispheres, some of them remarkable for the size and beauty of their flowers. Most of them are twining plants or *lianas*, stretching from tree to tree in the tropical forests; but some are small trees, as *B. porrecta*, the Mountain Ebony of Jamaica, so called from the color of its wood. The inner bark of *B. racemosa* (the Maloo Climber), of *B. scandens*, and of *B. parviflora*, East Indian species, is employed for making ropes. *B. retusa* and *B. emarginata* also East Indian, exude a brownish colored mild gum; while the astringent bark of *B. variegata* is used in Malabar for tanning and dyeing leather, and in medicine. The leaves of various species are used in Brazil as demulcent medicines, having mucilaginous properties. — Livingstone mentions a species of *B.* in s. Africa, called the Mopané Tree, remarkable for the little shade which its leaves afford.

They fold together, and stand nearly erect during the heat of the day. On them the larvæ of a species of *psylla* cause a saccharine secretion, in circular patches, beneath which the pupa of the insect is found. The natives scrape it off, and eat it as a dainty.

BAULITE, *baw'lit* [from Mount *Bauba*, Iceland]: mineral, a variety of Orthoclase; called also Krablite. It is a siliceous felspathic species, forming the basis of the Trachyte Pitchstone and Obsidian.

BAULK, n. *bawk* [see BALK]: a piece of foreign timber of from 8 to 16 inches square. BAWK, n. *bawk*, a cross-beam in the roof of a house uniting and supporting the rafters.

BAUMGARTEN, *bown'gar-tén*, ALEXANDER GOTTLIEB 1714, July 17—1762, May 26; b. Berlin, Prussia, a clear and acute thinker of the school of Wolf. He studied at Halle, and in 1740 became prof. of philosophy at Frankfurt-on-the-Oder, where he died. He is the founder of Æsthetics (q.v.) as a systematic science of the beautiful, though his mode of treatment is objected to by the more transcendental Germans, as being purely psychological; that is to say, he makes æsthetics only a portion of the philosophy of the senses, and contrasts it with logic, which belongs to the sphere of the reason. The idea of a science of the beautiful appears first in his treatise, *De Nonnullis ad Poema Pertinentibus*, (Halle, 1735). In 1750–58, he issued two vols. of his *Æsthetica*, but his death interrupted the work. His writings in other departments of philosophy are marked by clearness and precision; his *Metaphysica* (Halle, 1739; 7th ed. 1779) is one of the most useful books for the study of the Wolfian philosophy. See Joh. Schmidt's *Leibnitz und B.* (Halle, 1874).

BAUMGARTEN-CRUSIUS, LUDWIG FRIEDRICH OTTO: 1788–1843, May 31; b. Merseburg: German theologian. He studied theology at Leipsic; in 1810 became univ. preacher, and 1817 was appointed prof. of theology at Jena. B. was always a champion of religious liberty, on behalf of which he wrote various treatises. In 1820 appeared his *Introduction to the Study of Dogmatics* (Leip. 1820), a work of considerable originality and richness of thought. More complete exhibitions of his opinions are to be found in his *Manual of Christian Ethics* (Leip. 1827); *Outlines of Biblical Theology* (Jena, 1828); and *Outlines of Protestant Dogmatics* (Jena, 1830). In 1831–2, he published a *Text-book of the History of Doctrines*; in 1834, a work on *Schleiermacher, his Method of Thought and his Value*; also *Considerations on Certain Writings of Lamennais*. After his death, Kimmel published the whole of his exegetical prelections on the Gospels and Pauline Epistles.

B. was conspicuous for the breadth and solidity of his learning, the originality of his spirit, and the acuteness of his understanding, but was nevertheless deficient in clear and vivid expression. He attached himself to no school theological or philosophical. He had early been greatly influenced by the metaphysics of Schelling, from which he ultimately freed himself. His thinking was, to a certain

extent, rationalistic, but on the whole approached more closely to that of the spiritual Schleiermacher.

BAUMGARTNER, *bowm'gart-ner*, ANDREAS RITTER VON, or CHEVALIER DE: 1793, Nov. 23—1865; b. Friedberg, Bohemia. He studied at Vienna, where, 1823, he became prof. of natural philosophy, giving also popular lectures on Sundays upon mechanics, etc., for artisans and operatives. A result of these lectures was his *Mechanik in ihrer Anwendung auf Künste und Gewerbe* (2d ed. Vienna, 1823), and his *Naturlehre* (Vienna, 1823). Resigning his professorship because of an ailment of the throat, his scientific attainments were used in various offices under the government; and after the events of 1848, March, he was minister of mines and of public buildings, and chief of one of the departments in the ministry of finance. In 1851, May, he was appointed minister of commerce, trade, and public buildings. At the same time, he was appointed pres. of the Austrian Acad. of Sciences, of which he had been vice-pres. for a number of years. He published 1862, *Chemie und Geschichte der Himmelskörper nach der Spectralanalyse*; in 1864, *Die mechan. Theorie der Wärme*; see *Freiherr von B.*, *Eine Lebensskizze* by Schrötter.

BAUPET'TAH: town of British India, presidency of Madras, 29 m. from Guntoor. Pop. supposed abt. 20,000.

BAUR, *bow'ér*, FERDINAND CHRISTIAN: 1792, June 21—1860, Dec.: founder of the 'New Tübingen School of Theology.' In 1817, he became prof. in the seminary of Blaubeuren, where he gave the first indications of his remarkable abilities by the publication of his *Symbolism and Mythology, or the Nature-religion of the Ancients* (Stuttgart, 3 vols. 1824-5), a work which indicates the influence of Schleiermacher over the author. In 1826, he was called to Tübingen, where he held the chair of Protestant theology. His whole life was given to religious studies—the history of doctrines, the symbolism of the church, and biblical exegesis. On account of the universality of his culture, the wonderful activity and fertility of his mind, his rare combination of speculative thought with solid knowledge, and that faculty of historic divination, or insight, which enabled him to draw decisive results from separate, obscure, and neglected *data*—he has been regarded by many in Germany as the most massive theological intellect since Schleiermacher. Unlike Bruno Bauer, he made comparatively little use of the Hegelian philosophy in his writings; and when he did, it was professedly only that he might more clearly understand historical phenomena in their internal spiritual connection, and be enabled to represent the logical process of their development. His method of investigating the progressive history of religious opinion, however, incurred the reproach of formalism from its adversaries, who said that he applied it too rigorously, and made dogmas develop themselves with a kind of abstract inevitable regularity from previous historical conditions, without allowing for immediate and extraordinary providences. His most important works in the history of doctrine are—*Die christliche Gnosis oder die*

christliche Religionsphilosophie (Tübingen, 1835), (The Christian Gnosis, or the Christian Philosophy of Religion); a work which makes the Christian Gnosis of the 2d and 3d centuries the starting-point of a long series of religio-philosophical productions traceable uninterruptedly down through middle-age mysticism and theosophy to Schelling, Hegel, and Schleiermacher; *Die christliche Lehre von der Versöhnung* (Tübingen, 1838), (The Christian Doctrine of the Atonement); and *Die christliche Lehre von der Dreieinigkeit und Menschwerdung Gottes* (Tübingen, 1841-43), (The Christian Doctrine of the Trinity and the Incarnation). In reply to Möhler, the celebrated Rom. Cath. theologian, who had attacked the Protestant Church, he wrote *Der Gegensatz des Catholicismus und Protestantismus* (Tübingen, 1836), (The Opposition between Catholicism and Protestantism). Besides these works, based on a historical treatment of religion, to which class also belongs his *Lehrbuch der christlichen Dogmengeschichte* (Compendium of the History of Christian Dogmas). (Stuttgart, 1847), he published various critical treatises on parts of the New Testament; such as *Die Christuspartei in der Korinthischen Gemeinde; der Gegensatz des Paulinischen und Petrinischen Christenthums; der Apostel Petrus in Rom* (1831), (The Christ-party in the Corinthian Community; the Opposition of the Pauline and Petrine Christianity; the Apostle Peter in Rome), a work in which the author endeavors to demonstrate the existence of deep-rooted differences in that sphere of primitive Christianity, in which we are accustomed to see nothing but unity and harmony. His inquiries concerning the Gnosis led him to study minutely the pastoral epistles, the result of which study was *Die sogenannten Pastoralbriefe des Apostels Paulus* (Stuttgart, 1835), (The So-called Pastoral Epistles of the Apostle Paul), in which he combats the idea that St. Paul was their author, and refers them to the 2d c. Of a similar nature is his *Paulus, der Apostel Jesu Christi* (Stuttgart, 1845), (Paul, the Apostle of Jesus Christ). His work on the Gospel of John produced a startling effect, as up to B.'s time that gospel had generally been held prior in date to the three synoptic gospels, whereas B. strove hard to show that it was of post-apostolic origin. In 1847, appeared his *Kritische Untersuchungen über die canonischen Evangelien, ihr Verhältniss zu einander, ihren Ursprung und Charakter* (Critical Inquiry Concerning the Canonical Gospels; their Relation to each other; their Origin and Character). In 1851, he published *Das Markus-evangelium nach seinem Ursprung und Charakter* (The Origin and Character of St. Mark's Gospel). B. maintained that we must extend our notions of the time within which the canonical writings were composed to a period considerably post-apostolic, and which can only be determined approximately by a careful investigation of the motives which apparently actuated their authors. B. and his followers held that the New Testament books represent various stages in the approximation of two great Christian parties, Petrine and Pauline, at first directly hostile to one another. The most distinguished adherents of this 'Tübingen School' of German theology are Zeller,

Schwegler, and Hilgenfeld. B. is still admired for his learning; but his theories no longer hold their former power even in Germany.

BAUSEANT, n. *bar'sě-ant*, or BEAUSEANT, *bō'sě-ant* [F. *beau*, well; *seant*, sitting]: banner borne by the Knights Templars in the 13th c. It was of cloth, striped black and white; or, in heraldic language, sable and argent; the Templars' battle-cry.

BAUSSET, *bō-sā'*, LOUIS FRANÇOIS, Cardinal: 1748-1824; b. Pondicherry, India. His father, who held an important position in the French Indies, sent the young B. to France when he was but 12 years of age. He was educated by the Jesuits, and became Bishop of Alais 1784. Having signed the protest of the French bishops against the civil constitution of the clergy, he emigrated (1791); but in the following year he returned to France. He was soon arrested, and imprisoned in the old convent of Port Royal, where he remained until after the fall of Robespierre. After the restoration of Louis XVIII. in 1815, he entered the chamber of peers; the following year he became a member of the French Acad.; and in 1817 he received the appointment of cardinal. He wrote the history of Fénelon (1808-9, 3 vols.), at the request of the abbé Emery, who had in his possession the manuscripts of the illustrious Abp. of Cambrai. The work had great success; and its author was awarded, 1810, the second decennial price of the Institute, for the best biography. His History of Bossuet (1814) was less favorably received.

BAUTAIN, *bō-tăn*, LOUIS-EUGENE-MARIE: 1796, Feb. 17—1867; b. Paris: French philosopher and theologian. He studied under Cousin at the Normal School. In 1816, he was appointed prof. of philosophy in the College of Strasbourg, where the youth carried their admiration of him even to the length of imitating his walk and dress. The religious tendencies of his character did not find satisfactory expression in philosophy, and he became a priest, 1828. After the events of 1830, he resigned his professorship; but his reputation for orthodoxy, never very strong, had been destroyed in the eyes of his bishop by his work *La Morale de l'Évangile comparée à la Morale des Philosophes*, published a few years before, and he was in consequence suspended from sacred offices for several years, though reinstated 1841. In 1838, he was made dean of the Faculty of Letters at Strasbourg, and afterwards director of the College of Juilly. Still later, he was translated to Paris, and appointed vicar-gen. of the metropolitan diocese. In 1848, he attempted to give a religious direction to the revolution. He was selected as one of the professors of the Theological Faculty of Paris, and was an extremely popular preacher. His principal works are the following: *Psychologie Expérimentale* (1839); *Philosophie Morale* (1842); *Philosophie du Christianisme* (1835); *La Religion et la Liberté considérées dans leurs Rapports* (1848), *La Morale de l'Évangile comparée aux divers Systèmes de Morale* (1855).

BAUTER, n. *bar'ètér* [etym. doubtful]: to become hardened.

BAUTZEN, *borèt'sèn*, or, in official language, **BUDISSIN**, *bó'dis-sìn*: cap. of the circle of B., kingdom of Saxony. It is on rising ground overlooking the river Spree, and is the seat of the chief offices of justice in the circle, which had pop. (1880) 351,326, including 50,000 Wends. B. has several churches, a royal palace—formerly the residence of the markgrafs of Meissen—numerous schools, and two public libraries and an hospital. The chief branches of industry are manufactures of woolens, fustian, linen, hosiery, leather, and gunpowder. B. is a place of considerable antiquity, and was known in the time of Henry I. (931), but was made a town first under Otho I. Its several privileges, and the reputation of certain holy relics preserved in St. Peter's Church, made the place important. It suffered greatly in the war with the Hussites, and still more during the Thirty Years' War. Meissner, the poet (died 1805), was born here. B. is celebrated chiefly as the place where Napoleon, with an army of 150,000 men, won a barren victory over 90,000 of the allied Russians and Prussians, after an obstinate resistance, 1813, May 20–21. The allies lost in the two days 15,000 in killed and wounded; in addition to 1,500 prisoners, mostly wounded, which the French captured. The French left 5,000 dead upon the field, and upwards of 20,000 were wounded. The result of the battle, and the splendid retreat of the allies, were most disheartening to the French army, and even to Napoleon himself. Pop. of B. (1891), 21,517, including many Wends, descendants of the old Vandals.

BAUXITE: mineral, white to red, spongy, clay-like aluminum ferric hydroxid; principal source of aluminum and very light in weight. Deposits recently found in Saline and Pulaski cos., Ark., are more than 40 ft. thick. B. has been derived chiefly from French mines.

BAUZA, *bow'thá*, **DON FELIPE**: about 1750–1833: Spanish geographer, who at the age of 20 years, accompanied Malaspina in his naval inspections; and, on his return, became director of the hydrographic depot at Madrid. The fine maps of South America drawn under his careful supervision are superior to all that had preceded. In 1823, when political events compelled him to leave Spain, he betook himself to England.

BAVALITE, *bâ'va-lít*: mineral, oölitic in structure classed near Chamoisite (sub-species of Thuringite); an aluminium and iron silicate, of greenish black, bluish, or gray color, forming beds in schistose rocks in Brittany.

BAVARIA.

BAVARIA, *ba-vā'rĭ-a* (Ger. **BAIERN**, and officially, **BAYERN**): one of the states of the German empire; according to its size, the second in importance. B. is divided into two unequal parts, which are separated by the Baden and Hesse-Darmstadt dominions. The e. portion, comprising fully eleven-twelfths of the whole, is situated between lat. $47^{\circ} 20'$ and $50^{\circ} 41'$ n., and long. 9° and $13^{\circ} 48'$ e. It is bounded n. by the Prussian province of Hesse-Nassau, the Thuringian principalities, and the kingdom of Saxony; e., by Bohemia and Austria; s., by the Tyrol; and w., by Würtemberg, Baden, and the Grand Duchy of Hesse. The w. part, occupying the Rhine Palatinate, on the left bank of the Rhine, lies between lat. $48^{\circ} 57'$ and $49^{\circ} 50'$ n., and between $7^{\circ} 5'$ and $8^{\circ} 27'$ e. Rhenish Prussia, the Grand Duchy of Hesse, and Baden bound it on the w., n., and e., and France on the south.

B. is divided into 8 districts, as follows:

DISTRICTS.	Area:		Pop. 1900.	Pop. per sq. m. 1900.
	Eng. sq. m.			
Upper Bavaria	6,456	1,323,888	205.0	
Lower Bavaria....	4,152	678,192	163.3	
Palatinate	2,288	831,678	363.5	
Upper Palatinate....	3,728	553,841	148.6	
Upper Franconia.....	2,702	608,116	225.1	
Middle Franconia.....	2,925	815,895	278.9	
Lower Franconia.....	3,243	650,766	200.7	
Suabia	3,792	713,681	188.2	
Total	29,286	6,176,057	210.9	

Surface, Hydrography, Railways, etc.—B. is a mountainous country. It is walled in on the s.e., n.e., and n.w. by mountains ranging from 3,000 ft. to nearly 10,000 ft. in height. The highest elevation is reached on the s., the Zugspitz of the Noric Alps being 9,665 ft. high. On the e., the highest points of the Böhmerwald, dividing B. from Bohemia, are the Arber and Rachelberg, respectively 4,613 ft. and 4,800 ft. high. On the n.e., the Schneeberg, in the Fichtelgebirge range, has a height of 3,481 ft. A branch of this chain, which is connected on the n.w. with the Thuringerwald, extends s. between the rivers Regnitz and Vils. The Rhöngebirge, the greatest height of which is 3,000 ft., forms the northernmost chain of Bavaria. In the Rhine Palatinate, the principal mountain is the Hardt, whose culminating peak is about 2,300 ft. high. In the interior, B. is intersected in several directions by various less elevated ranges, alternating with extensive plains and fertile valleys. B. is rich in wood, nearly one-third of its surface being covered with forests, mostly of pine and fir.

As to its *hydrography*, B. has the Rhine flowing along the whole e. boundary of the circle of the Palatinate, which is also watered by the Speyer, the Lauter, and the Queich. The Danube enters B. proper at Ulm, where it is joined by the Iller, and pursues its course e.n.e. through the centre of the country, until it passes out at Passau, into the Austrian dominions. Including its windings, the length of the Danube in B. is about 270 m., navigable throughout. In its passage through B., it receives no fewer than 38 rivers, the chief of which, on the right bank, are, besides the Iller,

already mentioned, the Lech, the Isar, and the Inn; and on the left, the Wörnitz, the Altmühl, the Kocher, the Naab, the Regen, and the Ilz. The n. part of B. is in the basin of the Main, which, rising in the n., flows with many windings through the kingdom, s.w. to the Rhine, with which it unites at Mayence. Its most important tributaries are the Regnitz, the Rodach, the Tauber, and the Saale. B. has several lakes, the principal of which are the Chiem, circumference of 35 m.; the Wurm, length 14 m., breadth 4 m.; and the Ammer, circuit 27 m. These lakes are in the s., at the foot of the n. slope of the Noric Alps. A corner of Lake Constance also belongs to Bavaria. The lakes and rivers abound in fish. There are a few canals in the country, the most important of which is the *Ludwigs-Kanal*, which, taking advantage of the rivers Main, Regnitz, and Altmühl, unites the Rhine and Danube, and through them the German Ocean with the Black Sea. This canal was executed by government at a cost of upwards of \$4,000,000. B. has altogether about 3,200 m. of railway in operation. One of the chief is that between Augsburg and Lindau on Lake Constance, 80 m. These lines join Munich with Augsburg, Donauwörth, Nürnberg, Bamberg, Ulm, Kufstein, etc. B. has about 9,000 m. of public roads, and over 5,300 m. of telegraphs.

Climate, Soil, Products, etc.—The temperature of B. varies considerably, being cold and bleak in the mountainous regions, and very hot in summer in the plains and valleys. The climate generally, however, is mild and salubrious. The soil, particularly in the valleys of the Upper and Lower Danube, is very fertile, second to none in central Germany; but its capabilities as yet have not been fully developed, though even now the wealth of the country consists almost wholly of its agricultural produce. The plain south of Munich has been described as the granary of Germany, in consequence of its great productiveness, while the circles of Upper and Middle Franconia are styled the hop-garden of Bavaria. Wheat, rye, oats, and barley are chief articles of produce, but buckwheat, maize, and rice also are grown to a small extent. The vine, as well as the hop-plant, is cultivated extensively in Franconia, and the wine is held in great esteem. Rhenish B. also produces good wine. The quantity annually produced in B. is estimated at upwards of 16,000,000 gallons. Fruit, tobacco, flax, hemp, linseed, licorice, and beet-root are cultivated. Cattle-rearing is the exclusive occupation of the inhabitants on the slopes and at the foot of the Alps, pasturage being found at an elevation of 8,500 ft. Sheep, goats, and pigs are reared in Middle and Upper Franconia, and horses chiefly in Upper B. and Swabia, but the live stock is far from adequate to the extent and capacity of the country. The forests of B. annually furnish much timber. The soil is rich in mineral wealth, which as yet has not been drawn upon to anything like its full extent. The chief minerals are salt—which is a government monopoly, and obtained by evaporation, principally from the rich mines in the s.e. corner of the Alps—coal, and iron, which is worked almost everywhere

throughout the territory. In Rhenish B., copper, manganese, mercury, and cobalt are found; quicksilver and black-lead are obtained in some places; marble in great variety is common, also gypsum, alabaster, and some of the finest porcelain clay in Europe.

Manufactures, etc.—The manufacturing industry of B., like its agriculture, is generally undeveloped, and not centred in the hands of capitalists, who can largely take advantage of new inventions to prosecute it with energy and success, but distributed among numerous small manufacturers.

This is not the case with beer, the manufacture of which is carried to great perfection in B., and to an extent, if we take population into account, quite unparalleled in Europe. There are upwards of 7,000 breweries in B., making about 260 million gallons of beer annually, which are mainly consumed in the country, the quantity of beer that a Bavarian can imbibe being marvellous. Nearly two-thirds of the revenue of the state are said to be derived from this source alone. Next to beer, coarse linen is the most important product of manufacturing industry, and of late years some considerable cotton-factories have been erected; but the supply of cotton, woollen, and worsted goods is not equal to the home consumption. Leather is extensively manufactured, also paper, articles of straw and wood, porcelain, glass, nails, needles, jewelry, beet-root sugar, and tobacco. The mathematical and optical instruments of Munich are held in high repute. The exports consist of timber, grain, wine, cattle, wool, salt, hops, fruits, beer, leather, glass, jewelry, optical and mathematical instruments, butter, cheese, etc. The annual value of these is estimated at about \$7,500,000. Principal imports are sugar, coffee, woolens, silks, stuffs, drugs, hemp, and flax. The position of B. gives it the transit trade between n. Germany and Austria, Switzerland and Italy.

Population, Religion, Education.—The growth of the population of B. is much checked by the regulations which relate to marriages. No marriage can take place until the authorities who superintend the relief of the poor are fully satisfied that the persons wishing to marry have adequate means to support a wife and family; and certain military obligations have also to be fulfilled before a man can enter into wedlock. These restrictive laws have another consequence besides that of preventing a rapid increase of the population; they have tended to increase inordinately the number of illegitimate children. B. has a very bad pre-eminence in this respect on the continent. In the capital, the illegitimate births about equal the legitimate; and over the whole kingdom the proportion ranges from 1 in 4·5 to 1 in 5 of the total births, equal to a percentage of from 22½ to 20 illegitimate births. Pop. (1817) 3,564,757; (1833) 4,187,390; (1855) 4,541,556. During recent years the increase has been more rapid. Pop. (1864) amounting to 4,807,440; (1871) 4,863,450; (1900) 6,176,057. The Bavarians, notwithstanding their beer

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bibbing propensity, are essentially a sober and industrious people. Though all of German origin, they differ materially in character. The Franconians are intelligent, diligent, and steady; the Swabians, good-naturedly indolent; and the inhabitants of the Palatinate, lively and enterprising; while the Bavarians proper are dull and superstitious.

As to *religion*: in 1900, the Rom. Catholics numbered 4,357,133; Protestants, 1,739,695; Jews, 54,928; and other minor sects, 6,025. The state maintains perfect toleration, guaranteeing the same civil rights to Rom. Catholic and Protestant alike. Individuals of every sect have the privilege of worshipping privately without fear of molestation; and on application to the king by a sufficient number of families, the right of public worship can be secured. A concordat with Rome divides the state into 2 archbishoprics and 6 bishoprics. The consistories of Anspach, Baireuth, and Speyer, under the superior consistory of Munich, govern the Lutheran Church, the Munich consistory being in some degree subject to a section in the home department, which manages the temporal concerns of all the churches. The president of the Munich consistory has a seat and vote in the council of the state. The revenues of the Church of Rome are derived from lands and endowments, the Protestant Church is supported by the state. The govt. of B. for a time greatly favored the Old-Catholic Church, to the prejudice of the Ultramontanes. There were in B. (1900) 5,430 Old-Catholics.

B. has a good system of *education*, under the supreme direction of a minister of public instruction, to whom certain members of the provincial governments, specially instructed to watch the educational interests of the communities, are subordinate. These have numerous inspectors under them, who make systematic reports. Nevertheless, in Upper and Lower B., about one-fifth of the children are yet without school education. Besides elementary schools, there are about 30 *gymnasias*, and numerous Real-schulen and technical schools of various kinds. The three Bavarian universities are at Munich, Würzburg, and Erlangen, the latter being Protestant. There are several extensive libraries in B., that of Munich being the largest in Germany. Art has been zealously cultivated in B., and since the days of King Louis I. has been peculiarly fostered by the state. There are numerous institutions for the furtherance of painting, sculpture, and music.

Government, Revenue, etc.—B. is a constitutional monarchy, the throne hereditary in the male line. Its constitution dates no further back than 1818, when it was declared a part of confederated Germany. The king is the executive. The legislature consists of a chamber of senators, and one of deputies. The senators are hereditary, the king, however, having the power, within certain limits, to nominate members for life. The senate or chamber of Reichsräthe (councilors of the empire) consists of 16 princes of royal family, 2 crown dignitaries, 2 archbishops, the heads of 19 noble families, 22 other hereditary Reichsräthe, and 28 members appointed for life by the crown. The

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life members cannot exceed one-third the hereditary members. The lower house consists of 159 representatives (1 to every 31,500 population) chosen indirectly; electors or Wahlmänner being elected by the people (1 to each 500 pop.), and these electors choose the representatives. In the event of there not being a dissolution, the chamber lasts for six years. The usual length of the annual session is two months. The chambers, in ordinary circumstances, meet once a year for the dispatch of business, and it is compulsory on the king to summon them once in three years. No deliberation can take place unless two-thirds of the deputies are present. All matters relating to public burdens, etc., come first under the consideration of the chamber of deputies; with reference to other questions, the king exercises his own discretion as to which chamber shall first discuss them. No alteration in taxation, and no new law, can be promulgated without the consent of the legislature; but the royal prerogative is loosely defined.

The cabinet consists of seven members, chiefs of the departments of foreign affairs, justice, home affairs, public worship and instruction, finance, commerce, and public works and war. They are not necessarily members of the chambers, though they are privileged to be present at the deliberations. The privy council is composed of the king, certain royal princes, the ministers of state, and six councillors nominated by the king.

The *revenue* of B. for 1876-7 amounted to 258,686,781 marks (\$61,645,059), of which 20,296,453 marks were to be raised by direct taxation, 39,062,210 marks by indirect taxation, the rest chiefly from domains and state monopolies. The expenditure for the same year was estimated at the same figure. The interest on the national debt swallows up about 15 per cent. of the whole expenditure; the army, 18 per cent.; and worship and education about 11 per cent. The revenue for 1902-3 was estimated at 464,096,022 marks (nearly \$106,742,084), and the expenditure for the year was estimated at the same figure. The public debt 1901 was 600,237,525 marks (\$368,054,630), about three-quarters of it contracted for railways.

The raising of the *army* of B. was in 1871 adapted to the Prussian method of conscription. Every Bavarian is liable to service for seven years, and no substitution is allowed. The period of active service is four years, the remaining three being spent in the army of reserve; and the soldier, after quitting the reserve, is bound to serve other five years in the landwehr. When B., 1870, Nov., became one of the kingdoms of the German empire, her army, on the established conditions of its formation, was formed into two corps of the imperial army, each consisting of two divisions, under the command of the king of B. in time of peace, but controlled by the emperor of Germany in war. On the peace-footing, the infantry consists of 20 regiments, 60 battalions, 37,450 men in all; besides which there are 2 battalions of chasseurs, 1,160

strong, and 32 battalions of landwehr. There are 10 regiments of cavalry, of 7,192 men; 7,491 artillery, 1,528 engineers, and 1,090 of the military train—in all, 55,911 men without including the landwehr. In time of war the total force is about 280,000.

History.—The Boii, a race of Celtic origin, were the first inhabitants of B. of whom tradition furnishes any account. From them, its German name, Baiern, as well as its old Latin name, Boiaria, is said to have been derived. They appear to have conquered the country about B.C. 600, and they retained it until shortly before the Christian era, when they were subjugated by the Romans; the country being made an integral part of the Roman empire, under the names of Vindelicia and Noricum. After the decay of the Roman power, the Ostrogoths and Franks successively held possession of it, until Charlemagne conquered it. After his death, it was governed by lieutenants of the Frank and German kings, until 1070, when it passed into possession of the Guelph family; and it was transferred by imperial grant, in 1180, to Otho, Count of Wittelsbach, whose descendant now occupies the throne. The Rhenish Palatinate was conferred on this family by the emperor Frederick III., 1216. Now followed quarrels between relatives, and divisions of territory, until the dukedom of B. was severed from the Rhenish and Upper Palatinates (see PALATINATE); of the latter, however, it repossessed itself, 1621—the peace of Westphalia, 1648, confirming the title of its princes to that possession, as well as its right to the electoral dignity to which it had been raised in 1624. In the war of the Spanish Succession, B. supported France, and suffered considerably in consequence; but in 1777, on the extinction of the younger Wittelsbach line, it received the accession of the Rhine Palatinate. In 1805, B. was erected into a kingdom by Napoleon I. The king assisted Napoleon in his wars, and in consideration of his aid received large additions of territory. In 1813, however, the Bavarian king opportunely contrived to change sides, and thus managed to have confirmed to him, by the treaties of 1814–5, an extent of territory nearly as valuable as the possessions which the treaties of Presburg and Vienna had given him, and which he had now to restore to Austria.

In 1818, the new constitution came into existence, but owing to various causes, it did not secure that measure of popular freedom and contentment that had been expected. In 1825, Louis I. ascended the throne, a well-meaning, liberal, and intellectual monarch, and favorable to the liberty of the people and the press; but he lavished the wealth of the kingdom on the extravagant embellishment of the capital, and on works of art, while he neglected works of practical value, that would have tended to enrich the country, diminish the public burdens, and increase the welfare of his people. In 1830, a wave from the French revolution swept over the country, disturbing its equanimity, but not to any serious extent. The Bavarian government, however, took alarm, and restricted the free-

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dom of the press. These restrictions excited so much opposition, that they were soon rescinded, but new dissatisfaction was created by the imposition of new taxes. The Jesuits now obtained an immense influence with the king, which they used to the detriment of popular rights. The wrath of the people was further aroused against their monarch by his connection with the notorious Lola Montez, who was looked upon as an agent of the Ultramontanists—an imputation which that lady, in her autobiography, published 1858, indignantly repudiates, maintaining that she was the inveterate enemy of that party, and the true friend of the people. In 1848, March, following the example of the French revolutionists, the people of Munich seized the arsenal, and demanded reforms and the expulsion of Lola Montez. The king had to consent; but in the same month he abdicated his throne, in accordance, says Lola Montez, with a promise made by him to her. His son, Maximilian II., succeeded him: he died 1864. Louis II., noted for his eccentricities, ascended the throne, became insane, and drowned himself 1886. He was succeeded by his insane brother, Otto I., under the regency of Prince Luitpold. See GERMANY.

BAVA'RIA: a colossal female statue at Munich, which bears the name of the country of which it is a personification; exceeded in size only by the statue of Liberty in New York harbor. It was erected by King Louis I., the model having been executed by Schwanthaler. Externally, the figure bears a German aspect. A long folding garment reaches from the middle to the naked foot; over the half-naked breast a skin is cast, and the hair falls freely over the back. The brow is adorned with sprigs of oak; in the left hand, which is raised, she holds a wreath of oak; and in the right, which is bent towards the breast, a sword; at her side reposes the Bavarian lion, the guardian of her kingdom, in a sitting attitude. The statue is 65 ft. high, the pedestal being 30, so that the whole monument has a height of 95 ft. The statue was cast from the bronze of Turkish and Norwegian cannon. Internally, it is very remarkable. Through the back part of the pedestal, a door leads to a stone staircase of 60 steps. The figure itself is hollow, and resembles a mine, with side-passages which lead into the lion. A staircase of cast-iron, of 58 steps, leads through the neck up into the head, where there are two sofas, and several openings through which views may be had. At the highest part of the head, there is the following inscription: 'This colossal figure, erected by Louis I., King of Bavaria, was designed and modelled by L. von Schwanthaler, and cast in bronze, in the years 1844 to 1850, by Ferdinand Miller.' The head contains standing-room for thirty-one persons. The whole figure consists of seven pieces, and the lion of five. The monument was formally uncovered, amid great rejoicings, 1850, Aug. 7.

BAVARIAN, *n.* *bă-vă'rĭ-ăn*: a native or inhabitant of Bavaria.

BAVAROY, n. *bāv'a-roy* [F. *Bavarois*, Bavarian]: a great-coat; properly one made meet for the body; *fig.*, a disguise; anything employed to cover moral turpitude.

BAVIN, n. *bāv'in* [OF. *baffe*, a fagot: Gael. *baban*, a cluster]: in *OE.*, the scraps or waste pieces from fagots; a fagot; a piece of waste wood; in warfare, small bundles of easily ignited brushwood, from two to three ft. in length; made by arranging the bush-ends of the twigs all in one direction, tying the other ends with small cord, dipping the bush-ends into a kettle containing an inflammable composition, and drying them. They are among the combustible materials used in fire-ships.

BAWBEE, or **BABEE**, n., *baw-bē'* [F. *bas-billon*, base bullion or coin]: popular designation of a half-penny in Scotland, now dropping out of use. In Scottish song, B. is synonymous with a girl's fortune or marriage-portion—as, *Jenny's Bawbee*. **BAWBEES'**, n plu. *-bēz'*, money.

BAWBLE, or **BAUBLE**, n. *baw'bl* [mid. L. *baubella*, a precious thing, a jewel: F. *babiote*, a toy: compare Hung. *bub*, a bunch; *buba*, a doll]: a showy trifle; a worthless piece of finery. **BAUBLING**, a. *baw'bling*, showy but flimsy; contemptible.

BAWCOCK, n. *baw'kōk* [prov. Eng. *baw*, an exclamation of ridicule or contempt; *baws*, in east of England, boys or girls]: in *OE.*, a burlesque term of endearment; a fine fellow.

BAWD, n. *bawd* [W. *baw*, dirt, filth; *bawaid*, dirty: OF. *baude*]: one who promotes debauchery; a procuress. **BAWDY**, a. *baw'dī*, filthy; unchaste; obscene. **BAWDRY**, n. *baw'drī* [OF. *bauderie*]: the practices of a bawd; obscenity. **BAWDY-HOUSE**, a house of ill fame.

BAWL, v. *bawl* [AS. *bau* or *bow*, the cry of a dog: Gael. *beul*, the mouth, an opening: mid. L. *baulārē*, to bark, to roar: Icel. *baula*, to low as an ox]: to cry out with a loud full sound; to cry out lustily. **BAWL'ING**, imp. **BAWLED**, pp. *bawld*. **BAWL'ER**, n. one who.

BAXTER, *baks'tēr*, **RICHARD**: 1615, Nov. 12—1691, Dec. 8; b. Rowton, Shropshire: one of the most eminent of the Nonconformist divines in England. His early education was somewhat neglected. Instead of attending, as he wished, one of the universities, he was obliged to content himself with a course of private study, in the midst of which he was induced, remarkably, for he was habitually serious, to try his fortune at court, fortified with an introduction to the Master of the Revels. A month sufficed to convince him that he was out of his element at Whitehall, and a protracted illness after his return helped to deepen the earnestness of his religious convictions. Soon afterwards, at the age of 23, he was ordained, and entered on the mastership of Dudley Grammar School, from which he removed to act as assistant to a clergyman at Bridgenorth, where he resided nearly two years. In 1640, he was invited to become parish clergyman of Kidderminster, an offer which he accepted; and within a comparatively brief

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period, not only did he establish his reputation as one of the most remarkable preachers of the time, but succeeded in effecting a wonderful improvement among his people. On the breaking out of the civil war, his position became peculiar. Sincerely attached to monarchy, his religious sympathies were almost wholly with the Puritans; and though a Presbyterian in principle, he was far from admitting the unlawfulness of episcopacy. His views, which, some time before the Restoration, became extremely popular, were too catholic for the general taste, and the open respect shown by Baxter to some leading Puritans exposed him to some danger from the mob. He accordingly retired to Coventry, where he ministered for two years to the garrison and inhabitants. He afterwards accepted the office of chaplain to Colonel Whalley's regiment, and was even present at the sieges of Bridgewater, Exeter, Bristol, and Worcester. His influence was at all times exerted to modify the intolerance of partisanship, and to promote 'the spirit of love and of a sound mind.' On the urgent invitation of his parishioners, he returned to Kidderminster, when ill health forced him to leave the army, and continued to labor there for some time. During this period, he greatly extended his fame by the publication of his *Saints' Rest* and *Call to the Unconverted*. He never dissembled his sentiments with regard to the execution of the death-sentence on the king and the accession to power of Cromwell, even in the presence of the Protector himself, who endeavored, without success, to enlarge his ideas on the subject of revolutions. On the return of Charles, B. was appointed one of his chaplains, and took a leading part in the conference held at the Savoy to attempt a reconciliation between the contending church factions, a project defeated by the bigoted obstinacy of the bishops. B. was tempted with the offer of the see of Hereford, but declined the honor, praying instead to be permitted to return to his beloved flock at Kidderminster. He asked no salary, but his request was refused. The Act of Uniformity at length drove him out of the English Church, and in 1663, July, he retired to Acton, Middlesex, where he spent the greater part of nine years, occupied chiefly in authorship. He produced his books with a rapidity unparalleled in modern generations, at least in this one respect, that the quality was not always in the inverse ratio of the quantity. The Act of Indulgence, 1672, permitted him to return to London, where he divided his time between preaching and writing. At length, 1685, he fell into the brutal clutches of Judge Jeffreys, who condemned him, for alleged 'sedition' in his *Paraphrase of the New Testament*, to pay a fine of 500 marks, and in default, to lie in the King's Bench Prison till it was paid. The circumstances of the trial are graphically described by Macaulay in the second volume of his History. After a confinement of nearly eighteen months, B. was released and pardoned, on the mediation of Lord Powis. Afterwards he saw better times, and died in the 75th year of his age.

B. is said to have preached more sermons, engaged in more controversies, and written more books than any other

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Nonconformist of his age; and Dr. Isaac Barrow has said of him, that 'his practical writings were never mended, and his controversial seldom confuted.' The total number of his publications exceeded 160. Of these, by far the most popular and celebrated are his *Saints' Rest*, *Dying Thoughts*, and *Call to the Unconverted*—20,000 copies of which last were sold in a twelvemonth, and it was translated into all European languages. More important, however, in a theological point of view, are his *Methodus Theologiæ* and *Catholic Theology*, in which his peculiar system—a compromise between Arminius and Calvin—is embodied. His autobiographical narrative is historically valuable; the review of his religious opinions is spoken of by Coleridge as one of the most remarkable pieces of writing in religious literature. A complete edition of his works, in 25 vols., with a life by Orme, was published 1830. His Practical Works, in 4 vols., were published 1847. See Dean Boyle's *Richard Baxter* (London, 1883).

BAXTERIANS, *bāks tē'ri-anz*: adherents to Baxter's theological system, the peculiar doctrines of which were. 1st, That though Christ died in a special sense for the elect, yet he died also in a general sense for all, 2d, The rejection of the dogma of reprobation; 3d, That it is possible even for saints to fall away from saving grace. The tendency of Baxter's views was towards theology more liberal than Calvinism; and though deficient in logical consistency, they have been, and still are, popular in England, especially among the dissenters—who shrink from the hard conclusions of Calvinism, or the latitudinarian views of Arminianism. The two most eminent of the earlier B. are Dr. Isaac Watts and Dr. Philip Doddridge.

BAY, .a. *bā* [L. *badŭs*, brown: Sp. *bayo*. It. *bajo*: F. *bai*]: brown or reddish; inclining to a chestnut color. **BAYARD**, n. *bā'ārd* [F. *bai*, a chestnut-brown: Dut. *paard*, a horse]: a bay horse; *fig.*, a man blinded with self conceit; an unmannerly beholder. **ADJ** blind; stupid. **A BAYARD**, a knight without fear or reproach, after the famous chevalier of that name. **QUEEN'S BAYS**. 2d Dragoon Guards, so named from their bay horses.

BAY, n. *bā* [Sp. *bahia*—from prov. Sp. *badar*, to open, to gape. It. *baja*: F. *baye*—from mid. L. *baia*, a bay] an arm of the sea bending into the land; state of being hemmed in. a pond head raised to keep a store of water for driving a mill. *in arch*, term used to signify the magnitude of a building. 'If a barn consists of a floor and two heads, where they lay corn they call it a barn of two *bays*. These bays are from 14 to 20 ft long, and floors from 10 to 12 broad and usually 20 ft long, which is the breadth of the barn.' **BAY WINDOW**, a window that projects outwards, forming a kind of bay within. **BAY-SALT**, a sort of coarse salt, formed by the solar evaporation of sea-water; extensively obtained from salt marshes along the coast of France. See **SALT**.

BAY, n. *bā* [It. *abbaiare*; F. *abbayer*; L. *baubārī*, to howl as a dog. F. *aboi*, barking, baying]: the bark of a

dog when his prey is brought to a stand. AT BAY, brought to a stand, and turned to keep the enemy in check; hard pressed; at one's wits' end; a stag is *at bay* when he is made to turn and face his pursuers: V. to bark, as a dog at his game; to keep an enemy from closing in. BAY'ING, imp. BAYED, pp. *bād*.

BAY: an indentation of the sea into the land, with an opening wider than the inland extension. A gulf is of greater extension inland than a B., and has often a narrow opening. These terms are often loosely applied; Baffin's Bay, e.g., is really a gulf. When the body of water is large, and the entrance narrow, it becomes a shut sea, as the Baltic, the Red Sea, etc. Hudson's Bay, the Persian Gulf, and the Gulf of Mexico, might with propriety be termed seas.

BAY, n. *bā* [F. *baie*, a berry—from L. *bacca*, a berry: Sp. *baya*, the eod of peas, a husk]: name given to a number of trees and shrubs more or less resembling the Laurel or Victor's Laurel (*Laurus nobilis*), which is also called SWEET BAY (see LAUREL); the name *Baye*, which was once exclusively applied to the fruit, having been extended to the whole plant. The Common Laurel or Cherry Laurel (*Prunus Laurocerasus*) is sometimes called BAY LAUREL. See LAUREL.—The RED BAY of the southern states of America is *Persea Caroliniensis*. See LAUREL.—The SWEET BAY of America is *Magnolia glauca* (see MAGNOLIA), and the LOBLOLLY BAY of the same country is *Gordonia Lasianthus*. See GORDONIA. BAYS, n. plu. *bāz*, a honorary garland or crown of victory, especially for fame in poetry—originally made of laurel branches with its berries. From early times, bay-leaves have been associated with popular superstitions and usages. With other evergreens, they have adorned houses and churches at Christmas; and in token of rejoicing or of some meritorious deed, sprigs of bay, as well as of laurel, have been worn in the hat, or wreathed around the head. There appears to have been a notion that the B. was an antidote against the effects of thunder. In an old play, *The White Devil*, Cornelia says—

‘Reach the bays :
I'll tie a garland here about his head,
'Twill keep my boy from lightning.’

According to Shakspeare, the withering of bay-trees was reckoned an omen of death. Thus, *Richard II.*

‘’Tis thought the king is dead; we will not stay.
The bay-trees in our country all are wither'd.’

The following passage occurs in *Parkinson's Garden of Flowers*, 1629, p. 598: ‘The bay leaves are necessary both for evil uses and for physic, both for the sick and for the sound, both for the living and the dead. It serveth to adorn the house of God, as well as man; to crowne or enriche, as with a garland, the heads of the living; and to strike and decke forth the bodies of the dead; so that from the cradle to the grave, we have still use of it, we have still need of it.’ For other notices of this kind respecting the B., see *Brand's Popular Antiquities*, also *Hone's Year Book*. Bay-leaves are sometimes used in cookery for flavoring.

BA'YA '*Ploceus Philippinus*): small East Indian bird, of the great family of the *Tringillidae* (q.v.), and of a genus to some of which, from their remarkable manner of constructing their nests, the name Weaver Bird (q.v.) is often given. It is described by the older ornithologists under the name of the Philippine Grossbeak, or *Loria Philippina*. It is yellow, spotted with brown, the throat black, the beak conical and large. Its nest is very curious. Suspended from a slender twig of a lofty branch, so that monkeys, squirrels, and serpents may not reach it, it is rendered still more secure by its form, which is very like that of a common Florence flask, the entrance, however, being from beneath, and not from above, with lateral openings to separate chambers, in one of which the female sits upon the eggs, while another is occupied by the male, who there pours forth his song. It is composed of fine fibres of leaves and grass. The B. is very easily tamed, will perch on the hand, and can be trained to fetch and carry at command.

BAYADERES, *bā-ya-dērz'* [from the Portuguese *bailadeira*, that is, dancing girl:] European name for the dancing-girls and singers in India, who are divided into two great classes each comprising many subdivisions. The first of these classes, who are called Devadasi—that is, slaves to the gods—are divided into two distinct grades, according to the rank of the families whence they have sprung, the dignity of the idol to which they are devoted, and the authority and riches of the temple to which they belong. Those of the first rank are chosen from the most influential families of the Vaisya caste, to which the rich landed proprietors and merchants belong. Those of the second class are chosen from the chief Sudra families, who correspond to mechanics. No girls can be admitted among the Devadasis but such as are still in childhood, and free from any bodily defect. The parents of the girl must renounce by a solemn agreement all right to their child, who then receives the necessary instruction. The employment of the Devadasis is to sing the praises of their god at festivals and solemn processions, to celebrate his victories and great deeds, and to dance before him, to weave the wreaths with which the images are adorned, and in general to perform subordinate offices in the temple and for the priests. On the other hand, they are excluded from the celebration of such rites and ceremonies as are accounted peculiarly sacred, as, for example, at sacrifices for the dead, *suttis*, etc. The Devadasis of the first rank live within the enclosure of the temple, which they are not permitted to leave without the special permission of the high priest. They must remain unmarried for life, but are, notwithstanding, permitted to choose a lover, either in or out the temple, provided he belongs to one of the high castes. A connection with a man of low rank would be punished with the utmost severity. If they have children the girls are brought up to their mother's profession, and the boys are educated for musicians. The Devadasis of the second rank differ but little from those of the first, but they have more freedom, as they live without the temple. A certain number of them must attend daily at the temple

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service, but at public processions they are all obliged to appear. They not only dance and sing before the images—for which they receive a fixed allowance of rice-money—but when summoned by the nobles, they perform at marriages, banquets, etc. All the Devadasis reverence, as their special patroness and protectress, the goddess Rambha, one of the most beautiful dancers in the paradise of Indra. They bring a yearly offering in spring to her and to the god of love. The singing-girls who travel about the country are of an essentially different class from the Devadasis. They perform only at private feasts, entertain strangers in the *tschultris*, or public inns, and get different names according to the special arts in which they excel. Some of them live independently in bands, consisting of from 10 to 12 persons. They travel about the country, and divide their gains with the musicians who accompany them. Others are under the authority of *dayas*, or old dancing-women, who receive all the money they gain, and give the girls only enough for food and clothing. Some are really the slaves of such old women, who have procured them in their infancy either by purchase or by capture, and have instructed them in their art. To one of these classes belonged those B. who visited several European capitals in 1839. The costume of the B. is not without a certain alluring charm. Their dances do not resemble what we are accustomed to call dancing, but are rather a species of pantomime, which is explained by the songs recited by the accompanying musicians. The themes of these songs are usually either happy or despairing love, jealousy, etc. Some travellers have spoken with enthusiasm of the charms of these pantomimes; but to judge by the performances of the above-mentioned B. during their visit to Europe, these descriptions must be looked upon as very much exaggerated; for although these dancers possessed great physical agility, their movements were wanting in dignity and grace.

BAYAMO, *bá-yá'mō*, or **SAN SALVADOR**: town in the e. part of the island of Cuba, 60 m. n.w. from Santiago; in an unhealthful plain, near the left bank of the Canto, a small river which falls into an arm of the sea called the Canal of Bayamo. The town has considerable trade. Pop. abt. 7,500.

BAYARD: see under **BAY 1**.

BAYARD, *bā'ard*, **PIERRE DU TERRAIL**, Chevalier: 1476–1524, Apr. 30; b. Castle Bayard, near Grenoble: the knight *sans peur et sans reproche*; perhaps the only hero of the middle ages who deserved the unmingled praise and admiration bestowed upon him. Simple, modest, a sterling friend and tender lover, pious, humane, magnanimous, he held in rare symmetry the whole circle of the virtues. After acting as page to the Duke of Savoy, B. entered the service of Charles VIII., whom he accompanied to Italy, and gained renown in the battle of Verona, where he took a standard from the enemy. At the beginning of the reign of Louis XII., B. was engaged in a battle near Milan, where he followed the defeated and retreating forces with such

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impetuosity that he entered the city with them, and was made a prisoner, but the Duke Ludovico Sforza released him without ransom. At Barletta, 1502, B., with ten other French cavaliers, fought a tournament with an equal number of Spaniards, in order to decide their respective claims to superiority; and although seven Frenchmen were overthrown in the first charge, the result, chiefly through B.'s bravery, after a six hours' combat, was declared equal. Next, he is found fighting bravely in Spain, and against the Genoese and Venetians. When Pope Julius II. declared war against France, B. hastened to support the Duke of Ferrara; but failed in his scheme for making the pope a prisoner. Subsequently, he won fresh laurels in Spain. In the war with Henry VIII. of England—who had threatened Picardy, and besieged Terouane, 1513—when the French, on one occasion, were about to lay down their arms, B. made a sudden attack on an English officer, and, pointing his sword at his breast, said: 'Surrender, or I take your life.' The Englishman gave his sword to B., who returned his own, saying: 'I am Bayard, your prisoner; and you are mine.' The emperor and the king of England exchanged their prisoners without any demand of ransom for Bayard. When Francis I. had ascended the throne, B. was sent into Dauphiné to make a way for the army over the Alps and through Piedmont. In this expedition, he made Prosper Colonna a prisoner. Next, B. gained, at Marignano, a victory for the king, who, in consequence, submitted to receive the honor of knighthood from Bayard. When Charles V. broke into Champagne, at the head of a large army, B. defended Mezieres against all assaults, and on his entry into Paris he was hailed as the savior of his country, was made knight of the order of St. Michael, and appointed over a company of 100 men, led in his own name, an honor which until then had been confined to princes of the blood-royal. He was slain by an arrow from an arquebuss, while crossing the Sesia, and so highly was he esteemed for all noble qualities, that his death was lamented not only by the French king and nation, but also by his enemies. His love of virtue, especially of that kingliest of virtues, *justice*, was so passionate, that he was wont to declare that all empires, kingdoms, and provinces where justice did not rule, were mere forests filled with brigands. His body was taken by the enemy, but was restored to France, and interred in the church of the Minorites' monastery, near Grenoble.

BAYARD, *b'ard*, THOMAS FRANCIS: b. 1828, Oct. 29; received his early education at the Flushing School, under management of its founder, A. L. Hawks, D.D. Designing to follow the vocation of merchant his course of study was at first in view of a mercantile life, but he afterwards turned to the study of law. In 1851, he was admitted to the bar of the state of Delaware, and began practice at Wilmington. In 1855, he removed to Philadelphia, but returned to Wilmington after two years. He had already been appointed U. S. dist. attorney for Delaware in 1853, but had resigned the office at the end of a year. In 1869, he succeeded his father in the U. S. senate; was re-elected 1875, and again

BAYAZID—BAYBERRY.

1881. In 1876 he was a member of the Electoral College, and in 1880 a prominent candidate for the presidency, receiving 153 votes on the first ballot of the democratic national convention. Mr. B. was secretary of state 1885-89; ambassador to England 1893-97. He died 1898, Sept. 28.

BAYAZID. or **BAYEZEEED**, *bī-a-zēd'*: fortified town of Turkish Armenia, about 150 m. e.s.e. of Erzeroum, and about 15 m. s.w. of the foot of Mt. Ararat. Pop. prior to 1830, about 15,000; (1892) abt. 5,000, mostly Kurds.

BAYAZID' I.: see **BAJAZET**.

BAY'BERRY, or **CANDLEBERRY**, or **CANDLEBERRY MYRTLE**, or **WAX TREE**, or **WAX MYRTLE**, or **TALLOW TREE** (*Myrica cerifera*): small tree or shrub, 4-8 feet high, but generally a low, spreading shrub; native of the United States, but most abundant and luxuriant in the southern states. It belongs to the nat. ord. *Amentaceæ*, sub-order *Myriceæ*, according to some a distinct nat. ord., distinguished by naked flowers, with 1-celled ovary, a drupaceous fruit (stone-fruit)—the scales becoming fleshy—and a single erect seed. The genus *Myrica* has male and female flowers on separate plants; and the scales of the catkin in both male and female flowers are concave. The C. has evergreen oblango-lanceolate leaves, with two small serratures on each side of the point, sprinkled with resinous dots. The bark and leaves when bruised emit a delightful fragrance. The drupes—popularly called berries—are about the size of peppercorns, and when ripe are covered with a greenish-white wax, which is collected by boiling them and skimming it off, and is afterward melted and refined. A bushel of berries will yield four or five pounds. It is used chiefly for candles, which burn slowly with little smoke, and emit an agreeable balsamic odor, but do not give a strong light. An excellent scented soap is made from it.—*M. Gale* is the **SWEET GALE** of the moors and bogs of Scotland, well known for its delightful fragrance, native of the whole northern parts of the world. Several species are found at the Cape of Good Hope, one of which, *M. cordifolia*, bears the name of **WAX SHRUB**, and candles are made from its berries.

BAY CITY—BAYER.

BAY CITY: city, cap. of Bay co., Mich, on the e. side of Saginaw river, 4 m. from its entrance into Saginaw Bay (Lake Huron); on the Cincinnati Saginaw and Mackinaw, Flint and Père Marquette, and Michigan Central railroads; 108 m. n.n.w. of Detroit. It was settled 1836, and received a city charter 1865. B. C. had (1890) 62 manufacturing industries in 299 establishments, with \$8,993,879 capital invested, 4,356 hands employed, whose wages aggregated \$1,870,033; value of raw materials \$4,848,170 and of manufactured product \$8,600,385. The most important industry was in lumber, in which (for all products in year ending 1890, May 31) the capital employed was \$7,250,396, number of hands was 2,318, wages \$839,376, product \$5,221,409. Next in importance was the foundry, metal working, and machine making industry, with product amounting to \$554,622. According to the U. S. census 1900 B. C. had 376 manufacturing establishments, employing \$5,645,525 capital and 3,307 hands, paying \$1,466,328 for wages and \$3,820,599 for materials, and yielding products valued at \$7,087,624. In the 40 yrs. ended 1887 there were built in the shipyards of B. C. 57 propellers, 6 side-wheel steamers, 45 tugs; also schooners, barges, etc. Other industries are furniture manufacture, carriage building, wood-pipe manufacture, flour-milling, broom-making, brick-making, pump-making, etc. The assessed valuation 1901 was \$23,571,508, and the municipal debt \$410,000. There are public parks and 12 m. of street railways. The municipal waterworks (Holly system) are capable of supplying 800,000,000 or more gallons of water yearly. The city has also electric lights, gas, and good sewerage. Value of public school property abt. \$200,000; pupils enrolled 4,000, teachers 76; enrollment in high-school 230. There are 5 banks, of which 2 are national; the capital of the state banks (1892) was \$300,000; surplus \$99,000, undivided profits \$48,910; of the national banks the capital was \$450,000, surplus \$150,000, undivided profits \$108,433. Pop. (1880) 20,693; (1890) 27,839; (1900) 27,628.

BAYER, bē'ēr, ANTON: German dramatic composer and conductor: b. 1785 in Bohemia. After a course of study in Prague under Volger and Von Weber, he was orchestral conductor of German and Czech popular opera 1802-05; then gave piano and flute performances in Germany, France, and Italy. Later he was prof. at the Conservatorium, Prague. Some of his comic operettas and many of his instrumental compositions were very popular.

BAYER, AUGUST VON: architectural painter: 1803, May 3—1875, Feb. 2; b. Rorschach, on Lake Constance. After studying architecture, he turned 1828 to painting, in Munich, and later in Carlsruhe. His favorite subjects were grand mediæval structures, and the interiors of great public halls and churches. B. was court painter of Baden.

BAYER, JOHANN: a German constructor of charts of the stars; b., either at Augsburg or at Elain, Bavaria, in the latter part of the 16th c. He was a zealous Prot. pastor. He is now remembered only for his *Unanometria* (1603, and

BAYEUX—BAYEUX TAPESTRY.

2d ed 1639), in which he gave 51 maps of the heavens, constructed from the observations of his predecessors, and followed by explanations in his *Explicatio Characterum Aeneis Tabulis Insculptorum* (Stras. 1624). Although his maps are not remarkable for accuracy, even for his time, he has the merit of introducing the simple plan of distinguishing the stars of a constellation by means of letters. The largest star of the constellation he named by the first letter of the Greek alphabet (α), and the rest in the order of their apparent brilliancy, by the following letters. This convenient plan is still followed.

BAYEUX, *bâ-yéh'*: city of Normandy, France, dept. Calvados; on the Aure, not far from its mouth. B. is built chiefly of wood and plaster, is famous for its porcelain, and has also manufactories of lace, linen, calico, leather, and hats. It is a town of great antiquity—its cathedral being



Bayeux Tapestry.

Harold coming to anchor on the coast of Normandy.

said to be the oldest in Normandy. In it was preserved for centuries the famous Bayeux Tapestry (q.v.), now in the public library of the place. B. is the seat of a bishop, and has a college. Pop. abt. 8,000.

BAYEUX TAPESTRY, *bâ-yéh'*: a web of canvas or linen cloth, 214 ft. long by 20 inches wide, preserved in the public library, Bayeux, upon which is embroidered, in woolen thread of various colors, a representation of the invasion and conquest of England by the Normans. Tradition asserts it to be the work of Matilda, wife of William the Conqueror, and it is believed that if she did not actually stitch the whole of it with her own hand, she at least took part in, and directed the execution of it by her maids; and afterwards presented it to the cathedral of Bayeux, as a token of her appreciation of the effective assistance which its bishop, Odo, rendered to her husband at the battle of Hastings. Some antiquaries contend that it was the work not of Queen Matilda (the wife of the Conqueror), who died 1083, but of the Empress Matilda (the daughter of King Henry I.), who died 1167. According to Mr. Bruce, a re-

BAYEUX TAPESTRY.

ent authority on the subject, the tapestry contains, besides the figures of 505 quadrupeds, birds, sphinxes, etc., 'the figures of 623 men, 202 horses, 55 dogs, 37 buildings, 41 ships and boats, and 49 trees—in all, 1,512 figures.' The tapestry is divided into 72 distinct compartments, each representing one particular historical occurrence, and bearing an explanatory Latin inscription. A tree is usually chosen to divide the principal events from each other. This pictorial history—for so it may be called, and indeed, in several particulars, it is more minute than any written history extant—opens with Harold, prior to his departure for Normandy, taking leave of Edward the Confessor. Harold is next observed, accompanied by his attendants, riding to Bosham with his hawk and hounds; and he is afterwards seen, successively, embarking from the Sussex coast; anchoring in France and being made prisoner by Guy, Earl of Ponthieu; redeemed by William, Duke of Normandy, and



Bayeux Tapestry.

The crown offered to Harold by the people.

meeting with him at his court; assisting him against Conan, Earl of Bretagne; swearing on the sacred relics never to interfere with William's succession to the Saxon throne, etc.; and finally re-embarking for England. The tapestry then represents Harold narrating the events of his journey to Edward the Confessor, whose death and funeral obsequies we next see. Harold then receives the crown from the Saxon people, and ascends the throne; and next we have the news brought to William, who takes counsel with his half-brother. Odo, Bp. of Bayeux, as to the invasion of England. Then follow representations of the active war-preparations of the Normans; their embarkation; disembarkation; march to Hastings, and formation of a camp there; the battle, and death of Harold, with which the tapestry finishes.

The B. T. gives an exact and minute portraiture of the manners and customs of the times; and it has been remarked that the arms and habits of the Normans are identical with

those of the Danes, as they appear in the miniature paintings of a manuscript of the time of King Cnut, preserved in the British Museum.

M. Lancelot appears to have been the first to direct



Bayeux Tapestry.—Battle of Hastings.

attention to the existence of this curious monument, by a description of an illuminated drawing of a portion of it which he had discovered, in a paper presented to the Acad. of Inscriptions and Belles-Lettres, 1724. This led to the discovery of the tapestry itself, in the Bayeux Cathedral, by Père Montfaucon, who published an engraving of it, 1730, with a commentary on the Latin inscriptions. In 1767, Dr. Ducarel gave an account of it in his *Anglo-Norman Antiquities*. From that time until 1803, when Napoleon had it conveyed to Paris, the B. T. excited little attention. Its exhibition, however, in the National Museum there awakened public curiosity concerning it, and gave rise to various speculations as to its age, intention, etc. The discussion satisfactorily established it to be what tradition asserted it—a contemporary pictorial record of the events of the Norman Conquest. The Soc. of Antiquaries (London) published an engraving of the whole in the sixth vol. of the *Vetusta Monumenta*. The B. T. would have been destroyed at the Revolution, had not a priest fortunately succeeded in concealing it from the mob, who demanded it to cover the guns. It was formerly preserved in the cathedral of Bayeux, where it was wont to be exhibited, on certain days of the year, in the nave

of the church, round which it exactly went. See Bruce's *Bayeux Tapestry Elucidated* (London, 1855); and Fowke's *Bayeux Tapestry, reproduced in Autotype Plates* (Arundel Soc. 1875).

BAY ISLANDS: a small group in the Bay of Honduras, 150 m. s.e. of Balize. The cluster was proclaimed a

British colony 1852, but was ceded to the republic of Honduras 1859. The chief islands are Ruatan (q.v.), and Guanaja, whence Columbus first sighted the mainland of America.—Total pop., 5,000.

BAYLE, *bāl*, PIERRE: 1647–1706, Dec. 28; b. Carlat, in the old co. of Foix, France: one of the most independent thinkers in the 17th c. He studied philosophy under the Jesuits at Toulouse. The arguments of his tutors, but especially his friendly intercourse and quiet disputation with a Catholic clergyman in his neighborhood, led him to doubt the orthodoxy of Protestantism, and shortly prevailed so far that he openly renounced his father's creed, and adopted the Rom. Catholic. In the course of about 17 months, however, the conversation of his relatives brought him back to the Prot. profession. To escape ecclesiastical censure, he went to Geneva, thence to Coppet, where he studied the philosophy of Descartes. After a few years, he returned to France, and in 1675 was elected to fill the chair of philosophy in the Univ. of Sedan. In this office he remained until 1681, when the university was disfranchised. His next appointment was that of prof. of philosophy at Rotterdam. The appearance of a comet in 1680 having given occasion to a widely spread alarm, B., 1682, published his *Pensées Diverses sur la Comète*, a work full of learning, and treating, in discursive style, many topics of metaphysics, ethics, theology, history, and politics. This was followed by his *Critique Générale de 'l'Histoire du Calvinisme de Maimbourg'*. In 1684, he commenced a periodical, *Nouvelles de la République des Lettres*. The religious persecutions in France gave B. occasion to write his *Commentaire Philosophique sur ces Paroles de l'Evangile: 'Contrains les d'entrer,'* which professed to be a translation from the English, and contained a strong defense of the principle of toleration. In consequence of the accusations brought forward by the theologian, Jurieu, who regarded B. as an agent of France, and the enemy of Protestants, B., though he skilfully defended himself, was deprived of his license to teach (in 1693). He now assiduously devoted his leisure to the *Dictionnaire Historique et Critique* (1st ed., 2 vols. Rotterd., 1696—last edition, 16 vols., Paris, 1820). This was the first work published under his own name. Again Jurieu came forward as B.'s adversary, and induced the consistory of Rotterdam to censure the Dictionary, chiefly on account of the supposed irreligious tendency of the article on 'David,' and the commendation bestowed on the moral character of certain atheists. B. promised to expunge all the objectionable matter; but afterwards, when he found that the public entertained a different and more favorable opinion of the peculiar passages than the Rotterdam consistory, he judged it best to allow them to remain as they were, or made only slight alterations. New opponents were called into the arena by his *Réponse aux Questions d'un Provincial*, and the continuation of his *Pensées sur la Comète*. Jacquelot and Leclerc now attacked his religious opinions, while others persecuted him as the enemy of Protestantism and of his adopted country, Holland. These literary and theological

BAYLEN.

controversies had a bad effect on his failing health, and a disease, for which he refused to employ medical aid, proved fatal.

B. stands at the head of modern skeptics and logicians. Accustomed to view every question scrupulously on all sides, he was apparently led to doubt on religious matters generally; at least, it is not to be denied that his skepticism carried him the length of doubting the worth or the wisdom of the religious dogmatism that ruled both Rom. Catholics and Protestants in his day. B. was thus the antithesis of a bigot, but his hostility to bigotry originated rather in his indifference to the doctrines about which theologians quarrelled, than in any clear or high perception of the iniquity of religious persecution. With great eloquence and persistency, he vindicated the doctrine that moral characteristics and convictions may exist and flourish independently of particular religious opinions; and considering the barbarous manner in which the rival churches in B.'s time sought to enforce conformity of sentiment, and crush the liberty of private judgment, it is not to be wondered at that this doctrine, however objectionable abstractly, should have found wide acceptance in Europe. Voltaire calls him 'a more admirable logician than a profound philosopher;' and adds that 'he knew almost nothing of physies.' This probably means no more than that he was ignorant of the then recent discoveries of Newton; for the scientific articles in the Dictionary presuppose a knowledge of the theories of Descartes (q.v.), with which he was conversant enough. The style of B. is clear and natural, but diffuse, and often impure. The articles in the Dictionary seem to have been chosen merely as vehicles to introduce numerous digressions in notes, many of which are prolix and uninteresting; but the greater number of the articles are characterized by good sense, logic, critical acumen, and great learning. Though it is impossible to detect the presence of a religious or a philosophical system in the work, it everywhere gives indications of the high intelligence, honest principle, and universal knowledge of the author. It was proscribed both in France and Holland, and was consequently very widely diffused in both countries, and has exercised an immense influence over the literature and philosophy of the continent. It was the dawn of skepticism in the 18th c., and may be historically regarded as the protest of the enlightened human intellect against the irrational dogmatism of the churches. In his personal character, B. was amiable, obliging, disinterested, and modest, but at the same time morally courageous and independent. His *Œuvres Diverses* were published in four vols. at the Hague, 1725-31. See life of B. by Des Maizeaux (Amsterdam, 1712), and by Feuerbach (1838).

BAYLEN, *bī-lēn'*: town in the province of Jaen (Andalusia), Spain; 22 m. n. n. e. of Jaen. It has manufactures of linen, glass, bricks, tiles, soap, etc. B is celebrated as the place where the Spaniards won their only victory over the French (1808, July) more by accident, and the errors of the

French commander, Dupont, than by generalship. About 18,000 French soldiers laid down their arms at B., the only condition being that they should be sent to France; and other detachments of French troops afterwards offered their submission. The Spaniards, however, basely broke faith with them, and sent them to the hulks at Cadiz. The capitulation had the worst effect on the French arms. Joseph Bonaparte at once fled from Madrid, and Napoleon could find no words strong enough to express his indignation at the folly and pusillanimity of the surrender. Pop. 10,000.

BAYLES, *bā'lē's*, JAMES C.: journalist and sanitarian: 1854, July 3—————; b. New York. Having pursued a course of mechanico-technical studies, he entered the milit. service 1862 as lieut. of artil., but resigned 1864, and engaged in journalism. He edited the *New York Citizen* 1865-67, the *Commercial Bulletin* 1868-9, the *Iron Age* 1870-74, and then founded the *Metal Worker*. He made several noteworthy experiments in electro-metallurgy, and his researches in microscopic analysis of metals were published in the *Transactions* of the Amer. Inst. of Mining Engineers. He made a very thorough study of the question of house-drainage and pure water-supply, and 1876 published a work under that title which passed through many editions. He was pres. of the New York health board 1886-89.

BAYLEY, *bā'lē*, JAMES ROOSEVELT, D.D.: Roman Cath. abp.: 1814, Aug. 23—1877, Oct. 3; b. New York. He graduated at Trinity Coll., Hartford, Conn., 1835; studied medicine one year, but having decided to enter the ministry of the Prot. Episc. Church, began the study of theol. He was rector of a church in Harlem, N. Y., 1840-1, but then resigned and visited Europe. He joined the Rom. Cath. Church while abroad, and 1842 entered the theol. sem. of St. Sulpice, Paris. He was ordained priest 1844, and for 2 years was prof. in St. John's Coll., Fordham. He then became pastor of a country church, and incidentally performed the duty of chaplain in the ship-fever hospital at the New York quarantine station. B. was then recalled to the city, and till 1853 was sec. to Abp. Hughes, besides doing pastoral work. He was consecrated bp. of Newark, N. J., 1853; founded Seton Hall Coll. 1853, and established there a theol. sem. 1856. He attended the council of the Vatican 1869-70; 1872 he was promoted to the archiepiscopal see of Baltimore.

BAYLOR, FRANCES COURTENAY: author: 1848, Jan. 20—————; b. Fayetteville, Ark. She became known by her publications in periodicals, chiefly short stories. Her life has been passed mainly in the south. In 1865-67 and 1873-4. she resided in England, where she gathered much material, of which she made excellent use. Two of her short stories had great popular success: these were *The Perfect Treasure* and *On This Side*, presenting respectively the British and the American social characteristics. They appeared in book form as one narrative, entitled *On Both Sides* (Phila. 1886, repub. Edinburgh).

BAYLOR, GEORGE: revolutionary officer: 1752, Jan. 12—1784, Mar.; b. Newmarket, Va. He served in the Revolutionary army from the beginning, being appointed 1775, Aug. 15, aide-de-camp to Gen. Washington. After the surprise and defeat of the Hessians at Trenton, N. J., he was promoted 1777, Jan. 8, col. of dragoons. He met disaster 1778, Sep. 17, when the small force in his command was surprised near Tappan and nearly annihilated, Col. B. being wounded and captured. When released, he again entered the colonial service, and remained until the close of the war.

BAYLOR UNIVERSITY: institution of learning under Bapt. auspices, at Waco, Tex., named from Robert E. B. Baylor, LL.D. (1793–1874), member of congress from Ala., afterward a judge in Tex. It was chartered 1845, at Independence, Tex.; its course was enlarged 1851, by its pres., Rufus C. Burleson, D.D., LL.D., who, with the faculty, resigned 1861 and established Waco Univ. at Waco; and in 1882 the two were combined as the B. U., at Waco. It has good buildings and a library of 11,000 vols. The institution is open to both sexes. Besides the usual college course, it offers a school of oratory, school of music, school of art, school of physical culture, and a commercial coll. There are also a primary dept. and a preparatory dept. Profs. and teachers (1902) 35; total students 952. Pres., Samuel P. Brooks, A.M.

BAYNE, *bān*, PETER, LL.D.: essayist and biographer: 1830, Oct. 19—1895, Feb. 10; b. Ross-shire, Scotland. He graduated at Marischal Coll., Aberdeen, and was successively editor of journals in Glasgow, Edinburgh, and London. Since about 1870 he has been one of the editors of the *Christian World*, London. A collection of his biographical essays was pub. 1855, entitled *The Christian Life in the Present Time*, and later appeared the treatise, *The Testimony of Christ to Christianity*. He published *Life and Letters of Hugh Miller* (1871); *Chief Actors in the Puritan Revolution* (1878); and a new *Life of Martin Luther* (1887). He has consistently upheld liberal views both in theology and politics: his portraiture of Luther is faithful and life-like, but the work deeply offended the partisans of the high church. The degree LL.D. was conferred on him by the University of Aberdeen.

BAYNES, *bānz*, THOMAS SPENCER, LL.D.: logician: 1823—1887, May 30; b. Wellington, Somersetshire, Eng. He graduated at the Univ. of Edinburgh, and 1851–55 was assist. to Sir William Hamilton there; was on the staff of the London *Daily News* 1857–64, prof. of logic, rhetoric, and metaphysics in the Univ. of St. Andrews 1864–87. B. was editor-in-chief of the 9th ed. of the *Encyclopædia Britannica*, for which he wrote the title *Shakespeare*. He published a translation of the *Port Royal Logic* (1851); *New Analytic of Logical Forms* (1852).

BAY OF ISLANDS: on the e. coast of the northernmost portion of the North Island of New Zealand.

BAYONET, n. *bā'ōn-ēt* [from *Bayonne*, in France, where first made: F. *baïonnette*]: a dagger or small spear fixed at the end of a musket or similar weapon. The first bayonets, used in France 1671, called *bayonets-à manche*, had handles which fitted into the muzzle of the guns; but at a later date were introduced the *bayonets-à-douille*, or socket-bayonets, having a socket which enabled the B. so to be used as not to interrupt the firing. The use of pikes went out when that of bayonets came in; and the B. charge is now one of the most terrible maneuvers of trained infantry. It seems probable that the first B. was a dagger, which the musketeer stuck by its handle into the muzzle of his weapon, as defense against a cavalry charge; and that the usefulness of the contrivance suggested a permanent arrangement. **BAYONET**, v. to stab or kill with a bayonet: to compel by hostile exhibition of the bayonet. **BAYONETING**, imp. **BAYONETED**, pp.

BAYONET-CLASP: movable ring of metal surrounding the socket of a bayonet to strengthen it. **BAYONET CLUTCH**, a clutch, usually with two prongs, attached by a feather-key to shaft-driving machinery. When in gear, the prongs of the clutch are made to act upon the ends of a friction-strap in contact with the side-boss of the wheel to be driven. **BAYONET-JOINT**, kind of coupling, the two pieces of which are so interlocked by the turning of the complex apparatus that they cannot be disengaged by a longitudinal movement.

BAYONNE, *bā-yōn'*: a city of N. J., s. of Jersey City, separated from it by the Morris canal, and from Staten Island by the Kill von Kull. It comprises what were formerly the villages of Salterville (Pamrapo), Bayonne, Centreville, and Bergen Point, each having its railway station on the Central railroad of New Jersey, which runs through the city along the New York Bay shore. B. is about 6 m. s.w. of New York, to and from which some 30 trains run daily each way. It contains about a dozen churches, half as many public schools, two printing-offices, petroleum refineries, paint works, chemical works, and color works. The Port Johnson coal docks, on the Kill von Kull, near Bergen Point station, employ several hundred hands in receiving and shipping coal. Pop. (1870) 9,372; (1885) 13,080; (1890) 19,033; (1900) 32,722.

BAYONNE, *bā-yōn'*: one of the most strongly fortified towns of France, dept. of the Basses-Pyrénées, at the con-

BAYOU—BAY-WINDOW.

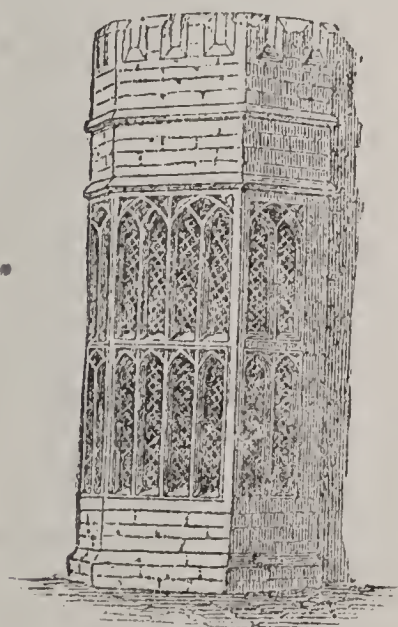
fluence of the Adour and Nive, about 3 m. from the mouth of their united waters in the Bay of Biscay. These rivers divide the town into three parts—Great and Little B., and the suburb of St. Esprit. B. is a handsome town, beautifully situated at the foot of the Pyrenees. It has extensive ship yards, rope-walks, glass-manufactories, sugar-refineries, and distilleries, and a brisk export trade in hams (for which it is famous), chocolate, liqueurs, timber, tar, and cork. Chief imports are wool, olive-oil, and licorice. The bayonet was invented here about 1670. It is the see of a bishop, has a cathedral, a mint, and schools of commerce and navigation. B. is historically interesting. It is said that here Catherine de' Medici and the Duke of Alba planned the massacre of the Huguenots on St. Bartholomew's Day, 1572. Here Napoleon cozened Charles IV. out of the crown of Spain, after he had ineffectually endeavored to get Ferdinand VII. to whom Charles had previously resigned it, to give it up. The forcing of the passage of the Nive, immediately in this vicinity, by the British, 1813, Dec., occasioned some of the most bloody conflicts of the Peninsular campaign. The place was invested by the British early in the following year, and a sally from it by the French. Apr. 14, was repulsed after great loss on the side of the British. Pop. (1891) 27,191; (1896) 26,913.

BAYOU, n. *bi'ô* [F. *boyau*, a bowel, a gut]: a channel for water: the outlet of a lake or side outlet of a river—used in the s.w. United States.

BAY-RUM: aromatic spirituous liquid, used by hair-dressers and perfumers, prepared in the West Indies by distilling rum in which leaves of *Myrcia acris*, or other species of the genus (family *Myrtaceæ*) have been steeped. It is difficult to obtain genuine B. except directly from the importer.

BAY-WIN'DOW, or (corruptly) Bow-win'dow: a win-

dow forming a *bay* or projecting space outwards from a room; noticeable feature in Gothic architecture. The external walls of bay-windows are, for the most part, either rectangular or polygonal, the semicircular form from which the term *bow* was probably derived having been unknown before the introduction of the debased Gothic. Though mentioned by Chaucer, bay-windows are not found in any of the styles before the perpendicular, during the prevalence of which they were frequently introduced, particularly in halls. Bay-windows generally reach to the floor, and are frequently supplied with a seat called the *bay-stall*. There are



Bay-Window, at Compton,
Wingate, Warwickshire.

many very beautiful examples of bay-windows in the col-

leges and balls of Oxford and Cambridge. When used in upper stories, such windows are supported on corbels, or large projecting moldings. See ORIEL.

BAW-YARN: woolen yarn.

BAZA, *bā'thā* (*Basti* of the Romans): town of Spain, province of Granada; about 50 m. e.n.e. of Granada. It is an agricultural place, in a rich plain, and is generally ill-built and irregular. Pop. about 13,000.

BAZAINE, *bā-zān'*, FRANÇOIS ACHILLE: 1811, Feb. 13—1888, Sep. 23; b. Versailles: marshal of France. He entered the army 1831; served in Algeria, Spain, the Crimea, and the Italian campaign of 1859; took part in the French expedition to Mexico, 1862, and from 1863 till the end of the war held supreme command of the French forces. When in Africa, 1836, he had gained the cross of the Legion of Honor; in 1856, he had been promoted to be Commander of the Legion; in 1863, he received the Grand Cross; and in 1869, he was made commander-in-chief of the Imperial Guard. At the outbreak of the great war with Germany, B. was at the head of the 3d army corps near Metz. After the battles of Wörth and Forbach he took command of the main French armies, and 1870, Aug. 14, began a retreat from Metz. Defeated at Mars-la-Tour and Gravelotte, he retired within the fortifications of Metz, which was immediately invested by Prince Frederick Charles. Attempts to escape failing, B. capitulated, Oct. 27; when 3 marshals, over 6,000 officers, and 173,000 men laid down their arms and became prisoners of war. In 1873, B. was tried by a court-martial, and sentenced to degradation and death for having failed to do his duty. The sentence was commuted to 20 years' imprisonment. But in 1874 B. contrived to escape from the fortress on the Ile Ste. Marguerite, on the s. coast, where he was then confined, and ultimately made his way to Madrid.

BAZAR, or BAZAAR, n. *bā-zār'* [Pers. *bazar*, a market]: an oriental market room, open or covered, where goods are exposed to sale; a large room for the sale of goods; in western lands a sale of miscellaneous goods, especially of fancy goods for a charitable object, is now often styled B.

BAZARD, *bā-zār'*, AMAND: 1791, Sep. 19—1832, July 29; b. Paris: French socialist. After the Restoration he helped to found the revolutionary society of the 'Friends of Virtue;' and in 1820, an association of French Carbonari (q.v), which soon had 200,000 members. He was the leading conspirator in the 'plot of Befort.' Later, B., impressed with the necessity of a total reconstruction of society, attached himself to the school of St. Simon, and in 1825 became one of the editors of a St. Simonian journal, *Le Producteur*. In 1828, he lectured at Paris with great success. His socialistic views were afterwards published in the *chef-d'œuvre* of the sect, *Exposition of the Doctrine of St. Simon* (1828—30). After the July revolution, the masses were attracted by the flattering doctrine of St. Simon that 'all social institutions ought to have for their end the moral, intellectual, and physical amelioration of the poor;' and in

BAZOCHE.

a short time, B. and his coadjutors had 'created a new society, living in the midst of the old,' with peculiar laws, manners, and doctrines. But B. soon separated from it, vainly sought to found a 'school' of his own, and in a heated discussion was stricken with apoplexy.

BAZOCHE, or BASOCHE, *bâ zōsh'*: a kind of burlesque translation into French of the Latin word *basilica*, i.e., royal palace. When the French parliament ceased to be the grand council of the king, and confined itself exclusively to administering justice, a distinction of name necessarily sprang up between those noblemen who formed the royal train, and the *habitués* of the court of justice. The former were called *courtiers*; the latter, *basochians*, or parliamentary clerks. But inasmuch as the word *basilica* necessarily presupposed a king, the *basochians*, to keep up their dignity, gathered round a mock one of their own making, who resided at the Château des Tournelles or the Hôtel St Pol. Such was the origin of the Basochian king and kingdom. Their historical existence can be traced to the beginning of the 14th c., when Philip the Fair conferred on the brotherhood certain privileges. The principal authorities in this harmless monarchy, after the sovereign himself, were the chancellor, the masters of requests, the referendary, and the attorney-general. Henry III. suppressed the title of king, and conferred all the privileges and rights attached to that office on the chancellor. Still the B. continued to exist as a kingdom, minus its head, and affected on all occasions the language of royalty. Its jurisdiction included the consideration and decision of all processes and debates that arose among the clerks. It administered justice twice a week, and also caused a species of coin to be struck which had currency among its members; but if we are to judge from the proverb about *la monnaie de basoche*, it had small credit in the outer world. The mock-monarch had the extensive privilege of selecting at his pleasure, yearly, from the French royal forests, a tall tree, which his subjects, the clerks, were in the habit of planting, on May 1, before the grand court of the palace, to the sound of tambourines and trumpets. In the public sports, this fantastical little kingdom was worthily honored; its chancellor had rooms at the Hôtel de Bourgogne; at the carnival, the *basochians* joined themselves to the corps of the Prince of Fools, and to the performers of low farces and 'mysteries.' They acted in their turn a species of satirical 'morality' (q.v.), in which they made extensive use of the liberty granted them, in ridiculing vices and the favorites of fortune. Louis XII. patronized these amusements. In 1500, he gave the brotherhood of the B. permission to perform plays in the grand saloon of the royal palace. Francis I. witnessed them in 1538; but in 1540, they were interdicted as scandalous and incorrigible. This interdict applied only to those of Paris, for, several years after, we read of the Basochian farces of Bordeaux. In their later development, they seem to have resembled the *Fastnachtspiele* (Shrove-Tuesday Plays), popular in Germany both before

and after the Reformation. They were the beginning of French comedy.

BDELLIUM, n. *děll'ŭm* [L.—from Gr. *bdellŏn*—from Heb. *bedôlach*]: a gum-resin, resembling myrrh (q.v.) in appearance and qualities, but weaker, and more acrid. High medicinal virtues were ascribed to it by the ancients, but it is now little used. It is supposed to be the produce of *Balsamodendron Roxburghii* in India, and of *B. Africanum* (also called *Hendelotia Africana*) in Senegal—trees or shrubs belonging to the nat. ord. *Amyridaceæ* (q.v.).—**EGYPTIAN B.** is obtained from the Doom (q.v.) palm, *Hyphæne Thebaica*. A similar substance is yielded by *Ceradia furcata*, a half-succulent plant of the nat. ord. *Compositæ*, inhabiting the most sterile regions of the s.w. of Africa; while the **SICILIAN B.**, formerly used in medicine, is produced by *Daucus gummifer*, a species of the same genus to which the carrot belongs, growing on the coasts of the Mediterranean.—The B. mentioned Gen. ii. 12 is probably not a gum-resin; but what it is is uncertain.

BE, v. *bē* [AS. *beon*; Gael. *bi*, to be; Gael. *beo*, alive; Sks. *bhu*, to be]: infin., impera., and subjunctive of the verb *am*, denoting to exist, to become, to remain; used in hypothetical and secondary propositions—as ‘*If I be,*’ ‘*If thou be.*’ **BEING**, imp. *bē'ing*. **BEEN**, pp. *bĕn*. **IF SO BE**, ‘*n case*. **TO LET BE**, to let alone; to omit. **BE ALL**, sum total. **BE IT SO**, a phrase of supposition; let it be so granted; grant it by permission; let it be so.

BE, *bē* [AS.]: a prefix, signifying *to make*. When *be* is prefixed to a *noun*, the noun becomes a *verb*—thus, **CALM** and **FRIEND** are nouns, but **BECALM** and **BEFRIEND** are verbs. **BE** prefixed to a verb signifies *about, over, for*—thus, **SPEAK** and **THINK** become **BESPEAK** and **BETHINK**. **BE** in a preposition, an adverb, or a conjunction, has the force of *by* or *in*—thus, **BECAUSE**, conj. signifies, by the cause of, **BEHIND**, prep. in the rear of. *Note*.—**BE** was formerly much more extensively employed as a prefix than now. Indeed, *be* may be prefixed to any verb or participle. In most AS. and OE. words *be* did not seem to affect the primary much, while in others the sense was intensified or widened. In every case where a form in *be* is not found, the reader can turn to the primary Eng. word; *be* is sometimes used in the sense ‘to make,’ as *be-numb*, to make numb.

BEACH, n. *bēch* [AS. *bece*, a brook; Sw. *backe*, an ascent; Icel. *bakki*, a bank]: the shore of the sea; the space on the margin of a sea over which the tide alternately flows and ebbs; the margin of the sea or of a large river: V. to run a ship on shore. **BEACH'ING**, imp. **BEACHED**, pp. *bēcht*, run on shore—as a boat or ship: **ADJ.** having a beach. **BEACHY**, a. *bēch'ŷ*, having beaches.

BEACH'ES, RAISED: tracts of ground at various elevations above sea level, which have evidently been sea-beaches at a former time. Modern geology teaches that the frame of the land is liable to risings and depressions, even in the present age. Several districts in different parts of the world

have been raised by earthquakes. After the Champlain period, beaches were raised 50 ft. in s. New England; 200 in Me.; 500, Labrador; 1,000, far north. Eastern Sweden, on the Gulf of Bothnia, has been raised 3 ft. in the last hundred years. As to the elevation of ancient beaches, the evidences are, first, the levelness of the ground in the general direction of the present shores over considerable spaces; second, the alternating beds of sand and gravel, such as we see composing the present B.; and, third, the presence of marine shells, which, in our country, are generally of species now living in the boreal seas. There are also what may be called terraces of erosion—indentations made in a rocky coast by the lip of the sea in ancient times—usually consisting of a flat platform presenting patches of gravel, and of a backing wall or sea-cliff, the latter sometimes penetrated with deep caves. In Scotland, there is a very decided terrace of erosion all round the bold coasts of the West Highlands and Western Islands, at an elevation of about 25 ft. above the level of the similar, but scarcely so well-marked, indentation which the sea is now making. In Lapland, there is a similar terrace, but stooping from 220 to 85 ft. in the course of 30 m. There is also a clear and well-marked terrace of the same kind, at about 520 ft. above the present sea-level, behind Trondhjem in Norway. See *Ancient Sea-margins*, by R. Chambers, 1848.

BEACHY HEAD; loftiest headland on the s. coast of England, projecting into the English Channel, $2\frac{1}{2}$ m. s.s.w. of Eastbourne, Sussex. It consists of perpendicular chalk-cliffs, 564 ft. high, forming the e. end of the South Downs. Several caverns have been cut out in the rock, for shipwrecked seamen to take refuge in; but shipwrecks have been far fewer since 1828, when the Bell Tout Light-house was built here, 285 ft. above the sea, lat. $50^{\circ} 44' 24''$ n., long. $0^{\circ} 12' 42''$ e., visible more than 20 m. distant. The view from Beachy Head, in clear weather, extends to Hastings, the Isle of Wight, and France. The cliffs are the resort of myriads of sea-fowl. Off this point, the French fleet beat the combined English and Dutch fleets, 1690.

BEACON, n. *bē'kn* [AS. *beacen*, a sign, a nod: Gael. *beachd*, watching: Icel. *bakna*, to signify by nodding]; a lighthouse or signal to direct navigation; something that gives notice of danger: V. to afford light or direction, as a beacon. **BEACONED**, pp. *bē'knd*: **ADJ.** provided with a beacon. **BEACONING**, imp. **BEACONAGE**, n. *bē'kn-āj*, money paid for the support of a beacon.

BEA'CON: any signal set upon a height, especially the alarm-fires formerly used to spread the intelligence of foreign invasion or other great event. These fire-signals were in use in the earliest times, and notices of them are found in the literary remains of ancient Persia, Palestine, and Greece. They were made by kindling a pile or bale of wood on the tops of lofty mountains, and keeping the flame bright by night, or having the fire so covered as to emit a dense smoke by day. There were various preconcerted modes of exhibiting the light or smoke, so as to indicate the

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nature of the intelligence. Thus, an act of the parliament of Scotland, 1455, directs that one bale on fire shall be warning of the approach of the English in any manner, two bales blazing beside each other, that they are *coming*; *indeed*; and four bales, that they are coming in great force.

An early instance of B. signals is found in the book of the prophet Jeremiah, in his call. in chap. vi. 1, to the people of Benjamin to kindle a fire signal on one of their mountains: 'Set up a sign of fire in Beth-haccerem; for evil appeareth out of the north, and great destruction.' An instance of the use of a line of beacons in very ancient times is given in a passage of the tragedy of *Agamemnon*, by the Greek poet Æschylus. The commander-in-chief of the Greek army at the siege of Troy is represented as communicating the intelligence of the fall of the city to his queen, Clytemnestra, at Mycenæ, in the Peloponnesus. The line consists of eight mountains, and the news is supposed to be conveyed in one night from Troy.

In England, the beacons were kept up by a rate levied on the counties, and had watches regularly stationed at them, and horsemen to spread the intelligence during the day, when the beacons could not be seen. They were carefully organized while the Spanish Armada was expected.

BEA'CON, in maritime affairs, is a signal for warning against dangers, or for indicating the proper entrance into a channel, harbor, or river. Generally speaking, a B. is fixed; whereas a *buoy* floats. In recent times, the construction of *floating* beacons has drawn attention, as it is conceived that they might in many cases supply the place of much more costly light-houses. A floating B. for the Goodwin Sands (q. v.) comprised a hollow wrought-iron floating vessel, with six water-tight compartments; a tower 28 ft. high, tapering in diameter from 7 to 3½ ft.; and a ball at the top of 3½ ft. diameter: some leakage frustrated its continued use. Many beacons are now made in which a bell is sounded instead of a light shown, as a warning: one is so constructed as to yield a continuous bell-ringing, so long as tide or current is flowing. It has a keel at the bottom, to make the B. turn with the tide, and channels below the line of flotation, through which the tide-water or current flows; the water causes two undershot wheels to revolve; and this revolution, by means of axes, cranks, rods, guides, and levers, brings a hammer to act on a bell. Some beacons on this principle have a bell of 2 cwt. Nearly allied with beacons, although not strictly such, are *gong*-beacons, which have in many cases been supplied to light-vessels. Fog sirens, fog whistles, and fog horns are similarly employed; but these audible signals are connected with light-houses or light-ships, and are only beacons in an indirect sense. See BUOY and LIGHT-HOUSE.

BEACONSFIELD, *běk'ūnz-fěld*, EARL OF: see DISRAELI, BENJAMIN.

BEAD, n. *bēd*, BEADS or BEDES, n. plu. *bēdz* [AS. *bead*; *gebed*, a prayer: Dut. *bede*, an entreaty]: in Anglo-Saxon and Old English, 'a prayer,' and hence came to mean the

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small perforated balls of gold, silver, glass, ivory, hard wood, etc., used for keeping account of the number of prayers repeated. A certain number strung on a thread makes a rosary (q.v.). A *bedesman* or *bedeswoman* is one who prays for another. Persons of station and wealth in old times 'had regularly appointed bedesmen, who were paid to weary heaven with their supplications.' Bedesmen appointed to pray for the king and state sometimes lived together, and hence *bedehouse* is synonymous with an almshouse, and *bedesman* may mean a recipient of certain charities. A common form of signature formerly was: 'Your bounden bedesman,' or, 'Your humble bedeswoman,' instead of the modern, 'Your obedient servant.' In *architecture* or *carpentry*, BEAD is a small round molding, sometimes called an astragal; also called BEAD'ING; in *gun-making*, small piece of metal on a gun-barrel, used for taking a sight before firing; in *book-binding*, a roll on the head-band of a book. BEAD TREE, a tree the pips and nuts of whose fruit are pierced and strung as beads; the *Meliâ azed'arach*, ord. *Meliâcœæ*. BEAD-PROOF, said of alcoholic liquors strong enough to carry bubbles for a time on the surface after being shaken; said also of a liquor whose strength has been ascertained by one of several numbered glass-beads placed in the liquor, floating in it, while the others differently numbered sink. BEAD-ROLL, in the Rom. Cath. Church, a list of those to be mentioned at prayers. BEAD-LOOM, a gauze loom in which there are beads strung at the spots where the threads intersect each other. BEAD-MOLD, n. a fungus organization, the stems of which consist of cells loosely joined together so as to resemble a string of beads. BEAD-SNAKE, n. a beautiful little snake (*Elaps fulvius*), variegated with yellow, carmine, and jet black. It belongs to the family *Elapidae* of the colubrine sub-order of snakes. Though venomous, it rarely uses its fangs. It is about two feet long. Its chosen habitat is in the sweet-potato fields of America. See BATATAS. ST. CUTHBERT'S BEADS, the detached joints of fossil Encrinites (q.v.), whose central perforation permitted them to be strung as beads, and from the fancied resemblance, in some species, of this perforation to a cross, they were formerly used as rosaries, and associated with the name of St. Cuthbert:

On a rock by Lindisfarn
St. Cuthbert sits, and toils to frame
The sea-born beads that bear his name.

They are known also as Entrochites, or wheelstones.

BEADS.—From the use of beads on a string as helps in reciting prayers, grew the application of the term to a kind of personal ornament, made of various materials, as glass, pottery, metal, bone, ivory, wood, jet, amber, coral, etc., and perforated so that they can be strung on threads and made into necklaces, bracelets, rosaries, etc., or worked on cloth as a kind of embroidery. Their use is of great antiquity, for they are found in the most ancient of the Egyptian tombs as decorations of the dead, and beads supposed to

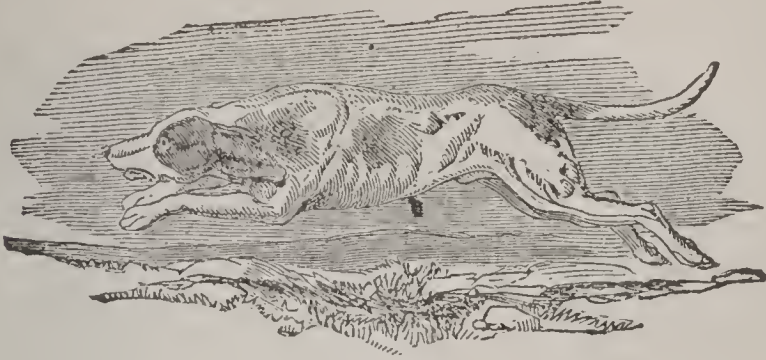
have been used in barter by the Phœnicians in trading with various nations in Africa are still found in considerable numbers, and are highly valued by the natives under the name of 'Aggry' beads. Ever since the 14th c., the manufacture of glass beads has been almost engrossed by the Venetians, and the glass manufacturers of Murano still produce fully nine-tenths of all the beads made. The manufacture is curious; the melted glass colored or uncolored, is taken from the pot by two workmen, who slightly expand the gathering by blowing down their blow pipes; they then open up the expanded glass, and join the two together whilst still very soft. This done, they walk rapidly away from each other in opposite directions, in a long shed like a small rope-walk, and draw the glass, which retains its tubular character given by the blowing, etc., into rods of great length, and often extremely small diameter. On cooling, which takes place very quickly, these long rods are broken up into short lengths of about a foot, and a small number of these shorter rods are placed on a sharp cutting edge, after being annealed, and are chopped into lengths. The roughly cut beads are next mixed very thoroughly with fine sand and ashes, then put into a metal cylinder over a brisk fire, and turned round rapidly as they begin to soften with the heat. They are then agitated in water, which cleans away the sand and ashes, and leaves the holes free, after which they are strung.

BEADLE, *n.* *bē'dl* [AS. *bydel*—from *bidan*, to wait: F. *bedeau*; OF. *bedel*, a beadle—from OH. Ger. *butil*, a herald: It. *bidello*]: *originally*, one who proclaims; a messenger or herald; in England, an inferior church or parish officer chosen and appointed by the vestry. His business is to attend the vestry, to give notice of its meetings to the parishioners, to execute its orders, to assist the parish constable, and generally to execute all the orders and business of the vestry and of the parish, as their messenger or servant. Shaw's *Parish Law*, c. 19. See PARISH: VESTRY. The B. holds his office during 'pleasure, and he may therefore be dismissed at any time for misconduct by the parishioners assembled in vestry.' BEADLESHIP, *n.* the office of a beadle.

BEAGLE, *n.* *bē'gl* [Gael. *beag*; W. *bac*, little]: small variety of hound, formerly much used in England for hare-hunting, now almost superseded by the harrier (qv.), to which the name B. is sometimes given. The true B. is smaller than the harrier, exceeding fifteen inches in height at the shoulder, sometimes considerably smaller, stout and compact in make, with long pendulous ears, smooth-haired, sometimes dark-brown, with a streak or spot of white about the neck, sometimes white with black or reddish spots. There appears to have been also a rough-haired variety. The B. is remarkable for its exquisite scent and perseverance; and although much distanced by the hare at first, is almost sure to kill it. It was customary in England, in former times, when beagles were used, to follow the chase on foot, a hunting pole being employed to assist in leaping. During the chase, the B. gives utterance to a

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cry which has been regarded as particularly musical; and Queen Elizabeth had little 'singing-beagles,' one of which could be placed in a man's glove. The smaller breeds were preferred, perhaps, at first, for the prolongation of the chase;



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and the diminutive size of a pack or 'cry' of beagles became a boast. The smallest are sometimes called *lap-dog beagles*.

BEAK, n. *bēk* [F. *bec*; It. *becco*, a beak—from mid. L. *beccus*: Gael. *beic*, a point, a nib]: the bill or nib of a bird; any pointed thing; in *naut. arch.*, a piece of brass shaped like a beak, terminating the prow of an ancient galley. **BEAK-HEAD**, n. an architectural ornament, especially of the Norman and Early English style, resembling the head of a beast united to the beak of a bird. **BEAK-HEAD-BEAM**, the largest beam in a ship. **BEAKED**, a. *bēkt*, having a beak; pointed.

BEAK, v. *bēk* [OE. and Sc.]: to bask; to warm; to warm one's-self.

BEAK'ED, or **BECQUÉ**, *bā-kā*: term in heraldry. When the beak of a fowl is of a different tincture from the body, it is then said, in heraldry, to be beaked of such a tincture. If its legs are of the same tincture, it is then beaked, and membered so and so. In place of B., Guillim commonly says 'armed.'

BEAKER, n. *bēk'ér* [Ger. *becher*, a goblet: Icel. *bikarr*]: a large beaked cup or glass; a flagon.

BEAL, *bēl*, **WILLIAM JAMES**: botanist: 1833, Mar. 11—
 ———; b. Adrian, Mich. He graduated at the Univ. of Michigan 1859; and 1865 at Lawrence Scientific School, Harvard. He taught in a Friends' acad. 1860-63, was prof. of nat. sciences in Chicago Univ. 1869-70, and then was appointed prof. of botany in the State Agricultural Coll. of Mich. He became a member of numerous scientific socs., was vice-pres. of the biological section of the Amer. Assoc. for the Advancement of Science 1883, and pres. of the Mich. State Teachers' Assoc. and the Soc. for Promotion of Agricultural Science 1881.

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BEALE, *bēl*, EDWARD FITZGERALD: military officer: 1822, Feb. 4—1893, Apr. 22; b. Washington, D. C.; son and grandson respectively of two U. S. naval officers. He was sent first to Georgetown College, and afterward was appointed a cadet in the U. S. Naval Academy, where he graduated 1842. He served with distinguished gallantry during the Mexican war, at the conclusion of which he received the appointment of supt. of Indian Affairs in Cal. and N. M. While in that country he was commissioned brig.gen., and placed at the head of an expedition against the Indians. B. was engaged 1850–60 in exploration through the western country, and was appointed by Pres. Lincoln 1861 surveyor-gen. of Cal. He was appointed minister to Austria 1876 by Pres. Grant; but resigned 1877, and has since managed his great cattle and sheep ranch in California.

BEALE, JOSEPH, M.D.: 1814, Dec. 30—1889, Sep. 23; b. Philadelphia. He graduated in medicine at the Univ. of Pennsylvania 1836, and engaged in private practice. In 1838 he entered the U. S. navy as asst. surgeon, and continued in the service thereafter, being appointed surgeon-gen. of the U. S. Navy, 1873, Dec. He was retired from the service 1876, with the rank of commodore. B.'s record shows a period of sea-duty of 17 years 1 month, shore and other duty 16 years 7 months, and unemployed 4 years 8 months—a long service for a naval surgeon.

BEALL, BENJAMIN LLOYD: military officer: 1800–1863, Aug. 16; b. in the Dist. of Columbia. He entered West Point 1814, but did not graduate. In 1836–7, he served in the Florida war, being brevetted maj. 1837 for gallantry. In 1847 he was appointed maj. 1st U. S. dragoons, and became lieut.col. of the same regt. 1855, Mar. 3. After the annexation of Cal. to the United States, B. was in command in that country, and generally on the Pacific coast. In 1861, May, he was made col. 1st dragoons, and 1862, Feb. 15, placed on the retired list for his long and arduous service.

BEALL, WILLIAM DENT: officer in the Revolutionary army: 1755—1829; b. Md. As maj. he served with distinction at Long Island, N. Y., and at Camden, S. C. In 1800 he was deputy adj.-gen.; was col. 1810; and served in the war of 1812.

BEAM, *n. bēm* [AS. *beam*, a tree: Ger. *baum*; Icel. *badmr*, a tree]: any large and long piece of timber or iron; the principal piece of timber in a building (see **STRENGTH OF MATERIALS**); the rod from which scales are suspended; the transverse pieces of framing extending across the hull of a ship; a ship's breadth (see **TONNAGE**); the horn of a stag; name of three different parts of a weaving-loom; the long, crooked forepart of a plow which connects the coulter and the bridle; ray of light: V. to throw out rays, as the sun; to dart; to glitter or shine. **BEAM'ING**, *imp.*: **ADJ.** darting off light in rays: N. dawn; first indication. **BEAMED**, *pp. bēmd.* **BEAM'LESS**, *a.* giving out no rays of light. **BEAMS**, *n. plu.* strong, thick pieces of timber stretching across a ship from side to side to support the decks

BEAM—BEAMING.

BEAMY, a. *bēm'ī*, having the massiveness of a beam of wood; radiant; antlered as a stag. **BEAM** or **WALKING-BEAM**: see **STEAM-ENGINE**. **BEAM-BIRD**, the spotted fly-catcher. **BEAM-COMPASS**, an instrument for drawing large circles. **BEAM-ENDS**, a ship is said to be on her beam-ends when she lies much on one side, as by shifting of cargo, or by stress of weather. **BEAM-ENGINE**, in *mech.*, a steam-engine in which power is transmitted by a working or walking-beam, in contra-distinction to one in which the piston-rod is attached directly to the crank of the wheel shaft. Newcomen's atmospheric engine is an example of this form of engine. **BEAM-KNIFE**, a two-handled knife used to shave hides stretched upon a beam. **BEAM-SHIND**, a. [*Eng. beam; shin*]: having the shin, or bone of the leg, rising with a sort of curve. **BEAM-TREE**, a kind of service-tree or mountain-ash; the *Pyr'us arīā*, ord. *Rosācēæ*. **THROWN ON MY BEAM-ENDS**, driven to my last shift.—**SYN.** of 'beam, v.': to gleam; ray; glimmer; glitter; shine; sparkle.

BEAM, of a ship: one of the main timbers which aid in supporting the decks. In ships of iron or steel, the beams usually are of that material. Beams stretch across from side to side, aiding to strengthen and uphold the sides of the hull as well as the decks; and they are themselves supported at the ends by massive pieces, called knees, standards, and clamps. Each timber B. is made of one fine piece, if possible; but if the length be too great for this, two or more timbers are scarfed together. Wherever it is practicable, the beams are upheld at or near the middle by pillars. The beams of all ships are generally made deeper in the middle than at the ends, in order that the decks supported by them may have a slight convexity on the upper surface, to carry off the rain-water readily.

The position of the beams, stretching across a ship at right angles to the direction of the keel, has given origin to many technical phrases used on shipboard. 'On the starboard B.' is applied to any distant point out at sea, at right angles to the keel, and—as viewed from the stern—on the starboard or right-hand side of the ship. 'On the port B.' similarly applies to the left hand. 'On the weather B.' is that side of the ship which receives or is towards the wind. 'Before the B.' is the bearing of any object when seen more in advance than *on* the beam. 'Abaft the B.' is the reverse of the expression just noted. 'On her beam-ends' is applied to the position of a ship when so much inclined to one side that the beams become nearly vertical.

BEAMING: a handicraft process in the cloth manufacture preliminary to weaving, formerly done by the weaver himself; but it has long since become a special employment, followed by workmen trained to the business as beamers, and, like hand-weaving, is tending to extinction by machinery—warping and beaming, in weaving by power, being conjoined into one operation. See **WEAVING**. B. is simply the art of winding the web on the weaver's beam in a manner suitable for weaving—the two essential require-

ments being firmness in the winding on of the web sufficient to withstand the reaction of weaving, and evenness in the spreading of the yarn at the required width. This is effected by what is called a beaming machine, which is simply a kind of roller-mill, extending from end to end of the beamer's shop. The weaver's beam, on which the web is to be wound, is set horizontally on two upright standards at the one end of the shop, and at the other end there is a friction-roller, set likewise level in a heavy frame, fixed to the floor, on which the web is wound like a rope, with the thrum-end out.

The number of pins or strands in the web being known, the beamer has merely to take a ravel (a comb-like utensil) with the corresponding number of teeth in the breadth required for the web, and filling each tooth successively with its respective pin, the spreading is completed; and the web being attached to the beam, the winding on of the web is a common crane operation, in which the tension on the yarn is regulated by the friction on the friction-roller. The beamer may thus beam for 400 weavers.

BEAM-TREE, WHITE (*Pyrus Aria*, see PYRUS): a tree of 20-40 ft. in height, native of almost all parts of Europe and of corresponding climates in Asia. It has been variously referred by botanists to several allied genera, *Sorbus*, *Crataegus*, and *Mespilus*. It has a straight, erect trunk, and a round or oval head; the leaves are ovate, cut and serrated (in some varieties, deeply lobed), white and downy beneath; the flowers in large terminal corymbs; the fruit scarlet, of the size of small peas. The fruit is acid and astringent, but becomes agreeable by incipient decay; it is sometimes called Sorb or Service-berry, and resembles the true Service (q.v.) in quality, although much smaller. Beer is made of it by fermentation. The wood is very hard and fine-grained; it is used for cogs for the wheels of machinery. The whiteness of the foliage makes the tree—sparingly introduced—ornamental in plantations.

BEAN, n. *bân* [Ger. *bohne*: Icel. *baun*: W. *ffæn*: L. *fabā*]: a longish round or flattish round vegetable contained in a pod; the common field-bean is the seed of *Vicia fabā*, ord. *Leguminosæ*. BEAN TREFOIL, a small tree of the genus *Anagyris*, bearing curved pods, ord. *Leguminosæ*. BEAN-CAPER, a plant so named on account of the flowers being used as a substitute for capers; the *Zygophyllum fabāgō*, ord. *Zygophyllacææ*. BEAN-TREE, the Swedish bean-tree, *Pyrus intermedia*; the bean-tree of Australia, *Castanocpermum australe*, a leguminous species belonging to the section *Sophoreæ*. BEAN-COD, n. the legume of a bean. BEAN-FLY, a fly of a pale purple color found on bean-flowers. BEAN-GOOSE, a migratory bird visiting England. BEAN-ORE, n. in *mining*, brown iron ore, occurring in ellipsoidal concretions. BEAN-SHOT, n. in *metal-working*, copper formed into shot like gravel by being poured in a melted state into water.

BEAN (*Faba*): genus of plants of the nat. ord. *Legumi*

nosæ, sub-ord. *Papilionaceæ*, included by Linnæus and many other botanists in the genus *Vicia* (see VETCH), from which it is distinguished chiefly by the leathery tumid pods, spongy within, and by the large scar on the end of the seed. It is an annual plant, with thick long pods, and seeds more or less ovate and flattened.

The B. has been cultivated from very early times. It was grown in Egypt and Palestine, and was so highly regarded by the Romans that the family of the Fabii is said to have taken its name from this plant. After a rude fashion the Indians cultivated this crop before Columbus discovered America, and it has long been extensively produced in all settled portions of the country. In common terms there may be said to be two great classes of the B.—the Bush B., grown both in fields and in gardens: and the Pole B., essentially a garden plant. Of some varieties only the ripened seeds are used, of others the seeds are eaten before they become hard, and of some sorts both pods and seeds are used in a green state.

The Bush B. can be grown on almost any kind of soil that is capable of supporting vegetation, but is much more prolific on fertile land than on soils in low condition. Like other legumes it is a good crop to precede grain, as its roots gather and store nitrogen from the air which permeates the soil. The ground should be well plowed and harrowed, and fertilizers containing rather large proportions of potash and phosphoric acid may be profitably applied. If yard manure is used it must be thoroughly decomposed, or there will be excessive growth of vines and light yield of seed. Rows may be 2–3 ft., and hills 12–18 in., apart, with 6 or 8 seeds in each hill; or the seeds may be scattered in a continuous row. From $\frac{3}{4}$ to $1\frac{1}{2}$ bushels of seed per acre will be required. Planting must be delayed till all danger of frost is passed. Where only small quantities are grown the planting is by hand, or with a corn-planter; but in the large B.-growing sections a machine for the purpose is often used. The B. is sometimes grown as a 'stolen crop' with corn, being planted between the hills; but the plan is not to be recommended. The ground should be kept free from weeds, by cultivation, and by hoeing if required, till the plants blossom. If there are large weeds later in the season they should be pulled by hand. Harvesting should be done as soon as the crop is ripe, or earlier if there is danger of frost. It is done usually by hand, but machines for the purpose have recently been introduced. When the plants are pulled, the dirt adhering to the roots should be shaken off and the plants laid on the ground to dry. If the vines are green, they should be put in small stacks, with the tops out, and left for two or three weeks to dry. When nearly cured they can be spread for a few hours in the sun, and then drawn to the barn. Thorough curing is indispensable, and exposure to rain and dew should be avoided as much as possible. Threshing is usually by hand, but can be done with an ordinary threshing machine if the cylinder is sufficiently raised. There are also machines made specially for thresh-

ing this crop. Great care should be taken in cleaning beans, and it is important that they should be picked over by hand, and all discolored specimens removed. They should be perfectly dried before being stored in large quantities. On good land prolific varieties will yield 20-25 bushels per acre. The legal weight ranges, in different states, from 60 to 64 lbs. per bushel. The vines are sometimes used for feeding purposes, but unless harvested when green they are not of very much value.—The Pole B. is much more tender than the Bush B. The soil should be rich, warm, and thoroughly pulverized. Planting must be deferred till the weather is warm and settled. Hills containing a liberal quantity of compost are to be made 4 ft. apart each way, a pole 5-8 ft. long, firmly set in each, and 4-6 seeds planted around it. The seeds are to be covered 2 in. deep. By cultivation and hoeing, the ground must be kept clean, and as the vines grow they should be tied to the poles. The beans are sold either in the pods or shelled, according to the demands of the market.

About 175 varieties of the B. are sold by seedmen in the U. S. Of these far the greater number belong to the Bush class. They vary greatly in color, size, productiveness, and length of season required in which to mature. The Broad Windsor, and other English varieties, do not thrive in this country, and only a very few English sorts are kept by our seed dealers.

The principal enemy of this crop is the B.-weevil (q.v.).—See KIDNEY BEAN: LIMA BEAN.

BEAN, ST. IGNATIUS'S: see STRYCHNOS.

BEAN-CAPER: see ZYGOPHYLLACEÆ.

BEAN GOOSE: see GOOSE.

BEAN-KING'S FESTIVAL: a social rite observed principally in France, whence it seems to have been transplanted to Germany. On the evening of Twelfth Day (q.v.) or, as the Germans call it (in allusion to the legend, that the wise men of the East who came to worship Christ were three kings), Three Kings' Day (*Dreikönigstag*), companies assemble to spend a few hours in mirthful relaxation. A large cake is baked, with a bean hidden somewhere in it. The cake is then divided into pieces, each person present receiving one, and whoever obtains the piece with the bean is king for the year. In this capacity, he holds a mock-court, and receives the homage of the company, who also amuse themselves with other diversions. The Bean King, however, is compelled to pay for his dignity, for he has to give an entertainment on the next Twelfth Night, that an opportunity may be afforded to choose another king. In France, this custom was at an earlier period so common, that even the court indulged in it, although the church, in the 17th c., exerted itself zealously for its suppression. The opinion that the Bean, king's festival owes its origin to the Roman Saturnalia—when even the children, partaking in the universal glee, were wont to elect a king, is not destitute of probability.

BEAN-WEEVIL.

BEAN-WEEVIL (*Bruchus obsoletus*): insect, very destructive to beans. It was found in Indiana feeding on a wild plant allied to the bean, and was described 1831 by Thomas Say. Several years later it was found infesting the cultivated plant. From that time it has spread through large portions of the country, and has multiplied to such an extent as to make it extremely difficult in many localities to produce a crop of perfect beans. It is smaller than the Pea Weevil (q.v.), which in other respects it closely resembles. The eggs of the female beetle are deposited on the green pods of the bean, and hatch in a few day. The larvæ work their way through the pods into the seeds on whose interior substance they feed. With the growth of the pods and the seeds, the holes made by their entrance are closed, and when the crop is ripe there is no indication of their presence. Many of the larvæ pass through their various transformations before cold weather, but others continue to feed during the winter, and do not become perfect beetles until the next spring. On the approach of warm weather these beetles leave their cells, and, like those which completed their transformation the preceding autumn, seek sheltered places in gardens or fields, where they remain till a new crop of beans is sufficiently developed for them to attack. In badly infested lots it is not unusual to find quantities of beans each of which contains 10 to 20 weevils. For injury already inflicted by these pests there is no remedy. Preventive measures consist in heating or fumigating infested beans as soon as harvested, and in planting seed obtained from some locality where the pest has not appeared, though the latter plan is not always practicable. Planting late in the season, June 25 to July 10, has been effectual in some places, but cannot be practiced far north, as it does not leave sufficient time for the crop to mature. Heating the beans, as soon as they are ripe, to a temperature of 145° will kill the larvæ which they contain, and if carefully done will not prevent germination of the seed. A more desirable and equally efficient method is to dry the seed thoroughly as soon as it is harvested, place it in air-tight barrels, and turn into each barrel, just before heading, a gill of bisulphide of carbon, chloroform, or spirits of turpentine. These materials should not be used near a fire or a lighted lamp. When the barrels are opened in the spring, the beans should be carefully examined, and if any of the pests are found alive another fumigation should be given. As is the case in contests with other insect enemies, individual efforts avail but little. The work of a careful farmer may be neutralized by the neglect of his careless neighbors. Extirmination of the pest would require the united efforts of all the bean-growers in the country.

BEAR.

BEAR, *v.* *bār* [AS. *beran*; Goth. *bairan*; Gael. *beir*, to carry: L. *fēro*; Gr. *phēro*, I bear: Sk. *bhri*]: to carry; to support; to suffer; to produce; to bring forth. **BORE**, *pt.* *bōr*, or **BARE**, *bār*. **BORN**, *pp.* *bawrn*, brought forth. **BORNE**, *pp.* *bōrn*, carried. **BEARER**, *n.* *bār'ēr*, one that carries or brings forth; a messenger; in *her.*, a figure standing on each side of the shield, as if to support it. **BEARING**, *imp.* carrying; producing: *N.* behavior; gesture; the situation of one object with respect to another. **BEARINGS**, *n. plu.* a coat of arms; the figures, called charges, on an escutcheon. **BEARABLE**, *a.* *bār'ā-bl*, that can be endured. **BEARABLY**, *ad.* *-bli*. **BEARING-BINNACLE**, a small binnacle on the life rail on the forward part of the poop. **BEARING CHAIR**, a chair in which an invalid, a lady, a dignitary, or other person is carried in semi-civilized states of society. **BEARING-CLOTH**, or **BEARING-CLOATH**, the cloth or mantle with which a child is usually covered when carried to the church to be baptized, or shown to the godfather and godmother by the nurse. **BEARING NECK**, in *mech.*, the journal of a shaft, the part of a shaft which revolves in a journal-box. **BEARING-PIER**, a pier supporting a structure above it. **BEARING-WALL**, in *arch.*, a wall supporting a beam somewhere between the ends, and thus rendering it much more secure than it would otherwise be. **BEAR WITH**, to endure. **BEAR UP**, not to faint or fail. **BEAR OFF**, to restrain; to carry away; among *seamen*, to remove to a distance. **BEAR DOWN**, to overthrow or crush by force; said of a ship endeavoring to reach another either for a friendly or a hostile purpose. **BEAR OUT**, to maintain and support to the end. **BEAR RULE**, to hold office; to rule. **BEAR RECORD**, to testify; to witness. **BEAR THROUGH**, to conduct or manage. **TO BEAR WITNESS**, to give evidence; to witness. **BEAR A HAND**, among *seamen*, to lend assistance; to be quick. **BEAR AWAY**, in *nav.*, to change the course of a ship and make her run before the wind. **TO BEAR IN HAND**, in *OE.*, to amuse with false pretences; to deceive. **SHIP'S BEARINGS**, the position of a ship at sea with reference to one or two fixed objects whose positions are visible.—**SYN.** of 'bear, *v.*': to yield; afford; produce; carry; convey; transport; bring; fetch; suffer; endure; support;—of 'bearing, *n.*': gesture, behavior; mien; deportment; tendency; direction; relation; influence.

BEAR, *n.* *bār* [AS. *bera*; Ger. *bär*; Icel. *biörn*; L. *fera*, a wild beast]: a wild animal covered with rough, shaggy fur. name of two constellations—the 'Ursa Major' and the 'Ursa Minor'; a name applied to a speculative jobber on the stock exchange (see **BULL**); any rough or ill-behaved person. **BEARISH**, *a.* *bār'ish*, rude; violent in conduct. **BEAR'WARD**, *n.* *-wārd* [Eng. *bear*; *ward*]: a keeper of a bear or bears; a protector of a bear; a bearherd; one who takes charge of a human bear; the star Arcturus, fancifully supposed to follow Ursa Major, the Great Bear, and look after its safety. This notion may be found in Sanskrit, Greek, Latin, and other languages. **BEAR-BAITING**, the sport or diversion of causing dogs to fight with a bear. **BEAR'S-GREASE**, the fat or tallow of a bear, extensively used as a

BEAR.

pomatum, though most of the pomades sold under this name are composed of other fats. See HAIR. BEAR-GARDEN, a place where bears are kept for sport; a place full of confusion, noise, and quarrels. BEAR-BERRY, the *Arbutus uva-ursi*, or *Arctostaphylos uva-ursi*, ord. *Ericacææ*, a heath plant, bearing baccate fruit; also called BEAR'S-WHORTLE-BERRY. BEAR-BIND; the *Convolvulus sepium* or *Calestegia sepium*, ord. *Convolvulicææ*, a climbing plant. BEAR'S-BREECH, the genus *Acanthus*, ord. *Acanthacææ*, coarse but stately herbaceous plants. BEAR'S EAR, the *Primula auricula*, ord. *Primulacææ*, a plant producing a yellow flower, from which all the fine forms of the Auricula are derived. BEAR'S FOOT, the *Helleborus foetidus*, ord. *Ranunculicææ*, a handsome plant with numerous flowers. BEAR-FLY, an insect. BEAR-MELL, n. a mallet for beating the hulls off barley. BEAR-SKIN, n. the skin of a bear; a shaggy kind of woolen cloth used for overcoats. BEAR-STANE, n. a hollow stone, anciently used for removing the husks of bear or barley.

BEAR (*Ursus*): genus of quadrupeds, the type of a family called *Ursidæ* (allied to raccoons, badgers, etc.), order *Carnivora*, tribe *Plantigradæ*. In the *Ursidæ* formerly were included not only the true bears, but also badgers, gluttons, and wolverines, racoons, coatimondis, binturongs, the kinkajou, the panda, etc. (See these articles.) Walking on the whole sole of the foot (plantigrade), the animals of this family are not, in general, capable of running very swiftly; and the nearly equal length of their fore and hind legs unfits them for leaping, most of them are also heavy both in form and gait. But while thus deficient in the powers of other carnivorous animals for obtaining prey, they exhibit the same mutual adaptation of endowments and wants; they are, in fact, not strictly carnivorous; no animals are more thoroughly omnivorous than some of them; while others, even of the true bears, always give a decided preference to vegetable food when it can be obtained, and their teeth and digestive organs are in exact accordance with such tastes. Their jaws are much more elongated than those of feline animals, and their bite proportionally less powerful, although some of the bears are still very formidable from their great general strength and the size of their canine teeth. Their claws are not retractile, and are adapted for digging in the earth, or for climbing trees, rather than for seizing prey. All animals of the family have five toes to each both of the fore and hind feet.

Bears have six cutting teeth above, and six below, one canine tooth on each side in each jaw, with four false molars and two molars (or grinders) on each side above, and four false molars and three molars below. The false molars are, in general, soon lost by the more carnivorous species. The true molars are very large and tuberculous, the false molars comparatively small. The tuberculous crowns of the molars exhibit the adaptation to vegetable food.—The tail in all species of B. is very short, so that some of them almost appear tailless. Most of them are nocturnal in their habits.

BEAR.

Bears are found in Europe, Asia, and N. and S. America, and both in warm and cold climates, the species belonging to cold climates being in general the most fierce and carnivorous. The ancients mention them as occurring in Africa; it seems strange that no recent accounts make certain the existence of any species in that continent. Nor is any known to belong to Australia.

The common B. of Europe, or Brown B. (*Ursus Arctos*), was at one time a native of the British islands. Bears were carried from Britain to Rome, for the cruel sports in which the Romans delighted, and they certainly were not exterminated in Scotland before the latter part of the 11th c. The Brown B. is usually about four ft. long, and two and a half ft. high. Its claws are about two inches long, and much curved. It has a convex forehead, and generally a brown fur, somewhat woolly in the younger animals, but becoming smoother with age. It produces from one



Brown Bear.

to three young ones at a birth, which remain blind for about four weeks. It is generally believed to be the only European species, although different varieties occur; and one, the Black B., has been regarded by some naturalists as specifically distinct. The common B. is very widely distributed over the whole of Europe and of the n. of Asia, Japan, and was formerly deemed identical with the American Brown or Black B. It is a solitary animal, and generally inhabits mountainous regions or thick forests. It sometimes preys on lambs, kids, etc.; is fond of fish, which in some countries, as in Kamtchatka, constitute a great part of its food; climbs trees in quest of honey, eats also fruits and vegetables, and in confinement has a strong appetite for bread. It usually prefers vegetable to animal food. The skin is valued for making fur-cloaks, etc.; the flesh is used as food, often in the shape of hams, as is that of the American Black B.; the paws are esteemed a delicacy. The fat (bear's grease) is in great request as an unguent for the hair. The intestines are used in Kam-

BEAR

tchatka, instead of glass, for windows. To the people of Kamtchatka, indeed, bears, which are very abundant, afford many of the necessities and comforts of life.—The common B., like others of the genus, in cold climates usually spends the winter in a torpid state. It selects a cavern or the hollow of a tree for its hybernation, or makes a hole for itself by digging; it is also said, but this needs confirmation, sometimes to construct a sort of hut with branches of trees, lined with moss. The winter being spent without food, it is said to be very lean on the return of spring. This and other species of B. are very often killed in their winter dens.

The American Black B. (*Ursus Americanus*) has varieties brown and cinnamon. Its total length seldom exceeds 5 ft. The fur is soft and smooth, and generally of a glossy black; but there are varieties of other colors, as the Cinnamon B., the yellow B., etc. The American Black B. is usually timid; seldom attacks man; feeds chiefly on



Polar Bear.

berries, when they can be obtained; occasionally visits gardens for the sake of cabbages and other vegetables; and strongly prefers vegetable to animal food, but has recourse to the latter when pressed by hunger, and in such circumstances occasionally approaches human habitations and captures pigs, which it endeavors to carry off. In such cases the B. walks on its hind-legs, the pig being firmly squeezed between its fore-paws and breast, making a noise which frequently leads to a rescue. This and other species of B., when assailed, not unfrequently hug their adversaries in the manner here described; and their strength renders this hug very dangerous. The skin of the American Black B. is used for caps, rugs, etc., and great numbers are annually killed upon this account, chiefly by the Indians in the employment of the Hudson's Bay Company. The Grizzly B. (*U. ferox*, now *horribilis*), found chiefly on the Rocky Mountains and the plains to the e. of them, from Mexico to lat. 61° n., is much larger than either of the species already noticed, and much more

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fierce and carnivorous. It sometimes measures more than 9 ft. from nose to tail, and the claws of the fore-feet more than 6 inches in length. It has a lengthened and narrowed muzzle, a very short tail, and long grizzled hair. No animal of the new world is more formidable than the Grizzly B. It is capable of overpowering the bison, and dragging away the huge carcass. It feeds, however, also on fruits and roots.—The Arctic B., or Polar B., also called the White B. (*U. maritimus*), resembles this species in size and fierceness, but is very distinctly characterized by its flat head and comparatively long neck. It has a smooth white fur. It is the only known species of B. strictly marine in its habits, never being found far from the sea. It inhabits the most northerly shores of Asia and America, Spitzbergen, etc., where it pursues seals, both in the water and upon the ice, and preys upon fishes, birds, etc. Among the articles of its food are eggs and berries in their season, and in confinement it will subsist long on



Syrian Bear.

bread and other vegetable food. Like other species of the genus, it displays great affection for its young, and will brave all dangers in their defense.—Of other species of B., the Syrian B. (*U. Syriacus*) may be mentioned, as perhaps the species particularly intended by the name B. in the Old Testament. It is generally of a dingy-white or brown color, and has a stiff mane of erect hairs between the shoulders. Flocks are not safe from it, yet it more frequently commits ravages on crops of pulse. In its habits generally, it much resembles the common B.; as do also the Tibet B. (*U. Tibetanus*), and the Spectacled B. (*U. ornatus*), so called from semicircular yellow marks above its eyes, a native of the Andes of Chili.—The Long-lipped B., or Sloth B. (*U. labiatus*), of the East Indies, is the kind commonly led about by Indian jugglers. Its long hair, short limbs, high back, peculiarly uncouth appearance, and gentleness of disposition, recommend it for this purpose. In a wild state, it is said to feed chiefly on fruits, honey, and ants. It possesses in a remarkable degree the power, common in some measure to all the bears, of protruding the lips in order to lay hold of food.—Some other East Indian species, which feed chiefly

BEAR—BEARBERRY.

on fruits and honey, are known as Sun-bears, as the Malayan B. (*U. Malayanus*) and the Bornean B. (*U. Eury-spilus*). They are characterized by an extremely long, extensible tongue. They are of gentle disposition, and become very affectionate when tamed. Sir Stamford Raffles had a Malayan B., which was very playful and quite harmless, although a powerful animal, and which showed refinement of taste in refusing to eat any fruit but the mango-steen, or to drink any wine but champagne. This species in a wild state does much damage to cocoa-nut plantations, by climbing the trees, and eating off the terminal bud, when it is said also to drink the sap (toddy) which flows out in abundance.

Remains of several extinct species of B. have been discovered in caves in Germany, England, and other countries, some of which appear to have been larger than the present bears of Europe, and of more decided carnivorous propensities. Of these, the *U. spelæus*, or Great Cavern B., has the skull of considerable vertical elevation from the upper end of the muzzle, and larger than that of the biggest Brown B. The *U. Arctoides* has a skull nearly of the configuration of that of the *U. Americanus*, and of the size of that of *U. spelæus*. The *U. prisceus*, or Ancient B., has the skull of a smaller size, and differing less from that of living bears.

ANT-BEAR, or Great Ant-eater: see ANT-EATER.

BEAR, BERE, or BEER: see BARLEY.

BEAR, GREAT AND LITTLE: see URSA MAJOR AND MINOR.

BEAR RIVER: rises in n. Utah, flows into Ida., and abruptly winds back into Utah, entering the Great Salt Lake 25 m. n.w. of Ogden. Though over 400 m. long, the shortest distance from source to mouth is about 90 m. It is unnavigable, and flows through a narrow valley, in the midst of rugged mountains. Coal beds and mineral springs are found on its banks.

BEAR-BAITING: cruel diversion of causing dogs to fight with a bear; formerly common in various countries. In England, B. was one of the established amusements, not only among the common people, but among nobles, and even royal persons; it is related that Queen Elizabeth did not consider it unbefitting her sex or rank to attend these rude entertainments. Pennant, in his *Zoology*, quoting from *The Household Book of the Earls of Northumberland*, says: 'Our nobility also kept their bearward; twenty shillings was the annual reward of that officer from his lord, the fifth Earl of Northumberland (died 1527), "when he comyth to my lorde in Christmas, with his lordshippe's beests for making his lordschip pastyme the said twelve days."' The places where bears were kept and publicly baited were called bear-gardens. There is a spot in the neighborhood of the court at Westminster, which, until lately was known as the Bear-garden. B., like bull and badger baiting, has long ceased as a public amusement.

BEARBERRY: see ARBUTUS.

BEARD.

BEARD, *n.* *bērd* [Ger. *bart*; Dut. *baard*; Russ. *boroda*; W. *barf*; L. *barba*, a beard; Icel. *bard*, a lip or border]: hair that grows on the lips and chin of a man; the awn of corn; the gills of oysters and other shell-fish: *V.* to seize by the beard in contempt or anger; to set at defiance; to oppose at close quarters, or openly; to oppose face to face: in *carp.*, to chip or plane away timber, so as to reduce the concavity of a curve; to modify a straight line. **BEARDING**, *imp.* *bērd'ing*. **BEARDED**, *pp.* *bērd'ēd*. **BEARD'LESS**, *a.* without a beard; young. **BEARD'LESSNESS**, *n.* the state or quality of being destitute of a beard. **BEARDLET**, *n.* in *bot.*, a little beard. **BEARDLETTED**, *a.* in *bot.*, furnished with small awns, as *Cinna arundinacea*. **BEARD-GRASS**, *n.* the English name of Polypogon, a genus of grasses. **BEARD-TREE**, *n.* the hazel (*q.v.*) tree. **BEARDING-LINE**, *n.* in *ship-building*, a curved line made by bearding the deadwood to the shape of the ship's body.

BEARD: the hair which grows on the upper lip, and on the chin and cheeks of the male sex. It is usually, though not always, of the same color as the hair of the head, but somewhat shorter, stronger, and more wiry; it is invariably the color of the hair on the eyebrows. The *B.* is the distinctive sign of manhood. In women, an incipient *B.* sometimes appears in the later years of life. Instances occur of women with a *B.* almost equal to that of the male sex, but these are recorded as prodigies. The *B.* is generally luxuriant in persons of the Slavic and Celtic races. The aborigines of America, naturally almost beardless, make themselves entirely so by plucking out the hairs of the beard. In early times, the *B.* was considered by almost all nations a sign of strength and an ornament of manhood, was carefully cherished and even regarded as sacred. Among the Turks, Arabs, Persians, and many other nations, the re-



Egyptian Beard-case.
From the Memnon's head
in the British Museum.

moval of the *B.* was, and is yet to a very great extent, regarded as a severe punishment and an extreme degradation. The case of David's ambassadors, recorded in 2 Sam. x., illustrates the same feeling among the ancient Jews. The Moslems carry combs constantly about with them for the purpose of dressing the beard. It is common to do so immediately after prayers, the devotee remaining on his knees during the operation. The hairs that fall out are then carefully picked up and preserved for entombment with their owner when he dies; frequently he himself deposits them beforehand in his destined tomb. The ancient Jews did not dye their beards, and the Turks rarely, but the practice was common among the Arabs and Persians. The Arabs dyed the *B.* red, not only because

BEARD.

dye of that color (being merely a paste of *henna* leaves, was easily obtainable, but because it was an approximation to golden yellow, the color recommended by their prophet Mohammed, who hated black, the color the Persians preferred. The Persian kings are said to have interwoven their beards with gold thread. It is customary among the Turks to anoint the B. with perfume, and to smoke it with incense. The Jews also anointed their beards. The Moslems commonly clipped their whiskers, the Jews did not. The Egyptians shaved their beards except in time of mourning, when they let them grow. From some of the ancient Egyptian statues, however, it would appear that beard-cases were worn, which may indicate that the practice of shaving was not universal. The fashions of beards have been very different at different times and in different countries.

A neglected B. was a sign of mourning among the Jews. According to Levi's *Succinct Account of the Rites and Ceremonies of the Jews at this present Time*, they are forbidden to shave or cut their nails, or bathe for thirty days after the death of a father, mother, brother sister, son, daughter, wife, or husband. In Greece, the B. was universally worn till the time of Alexander the Great, who ordered shaving, that the beards of his soldiers might not be laid hold of by their enemies in battle. Shaving was introduced among the Romans about B.C. 300. Pliny says Scipio Africanus was the first Roman who shaved every day. Subsequently, the first day of shaving was regarded by the Romans as the entrance upon manhood, and celebrated with great festivities. Under Hadrian, the B. was allowed to grow again: and this fashion prevailed till the time of Constantine the Great, when it was discontinued. Peter the Great compelled shaving in Russia by imposing a heavy tax upon the B., and further, by having the beards of all whom he found wearing them plucked out by the roots, or shaved with a blunt razor. The B. was commonly worn in France till the time of Louis XIII., when, because the monarch was young and beardless, the fashion changed at the court and throughout the kingdom. A similar change took place in Spain on the accession of Philip V. The Anglo-Saxons wore beards for a considerable time after their invasion of Britain; and the B. appears to have been general among the people at the time of the Norman Conquest. But the Normans not only shaved themselves, but compelled the conquered to do so likewise; and many of the English preferred to leave the country rather than submit to have their whiskers shaved. It would appear, however, from the sculptured representations on the tombs of kings and nobles, that not very long after the Conquest some of the Normans adopted the custom they had prohibited among the vanquished. Edward III. is represented on his tomb in Westminster Abbey with a very long beard. In the time of Elizabeth, beards were of the most varied and fantastic cut. Taylor, the 'Water-poet' thus satirizes the extravagance of beards prevailing in that and the succeeding reign:

BEARD.

Some seem as they were starched stiff and fine,
Like to the bristles of some angry swine;
Some cut and pruned like to a quick-set hedge,
Some like a spade, some like a fork, some square,
Some round, some mowed like stubble, some stark bare;
Some sharp stiletto-fashion, dagger-like,
That may with whispering, a man's eyes out-pike,
Some with the hammer-cut, or Roman T,

That heights, depths, breadths, triform, square, oval, round,
And rules geometric in beards are found.

The B. gradually declined under Charles I.; in the reign of Charles II., whiskers and moustaches only were worn, and the practice of shaving the whole face soon became general all over Europe, and it is only within the 19th c. that the B. has been in some measure restored, the soldiers of Bonaparte setting the example. But until about the year 1840, the B. was regarded by some govts. of continental Europe as a badge significant of democratic sentiments, and as such was interfered with by police regulations. Physicians recommend that the beard should be allowed to grow on the chin and throat in cases of liability to inflammation of the larynx or bronchiæ; and moustaches and whiskers are reckoned useful for prevention of tooth-aches and nervous diseases of the face. The Brit. soldiers in the Crimean war were allowed to wear their beards; and with some limitations, the Brit. army generally are now permitted to do so. The wearing of the B. has, in short, been a matter of fashion in all ages and countries—an extreme in one way usually leading to an extreme in the other. At present, the tendency is to let the B. grow, though in a way suggested by the tastes of the individual. The B. is itself liable to the same diseases with the hair of the head, and to a peculiar disease (*mentagra*) occasioned or kept up by shaving, consisting in a bark-like exudation from the inflamed sebaceous glands of the hair. For detailed information, see Kitto's *Pictorial Bible*; Bulwer's *Artificial Changeling* (Lond. 1653); Hotoman's *Pogónias* (Leyden, 1586), reprinted in the *Lexicon* of Pitiscus; Taylor's *Whip of Satire*; etc.

BEARD, *bērd*, GEORGE MILLER, M.D.: 1839, May 8—1883, Jan. 23; b. Montville, Conn. He studied at Phillips Acad. (Andover), and graduated at Yale 1862, afterward attending the Yale med. dept., and taking his degree at the New York Coll. of Physicians and Surgeons. In 1863–64 he was assist. surgeon on a U. S. gunboat; settled in New York 1865, and became distinguished as a neurologist, making a specialty of nervous diseases, particularly those arising from the liquor habit. He wrote important monographs on science in its relation to insanity, spiritualism, and delusions; and delivered popular lectures on these and cognate subjects.

BEARD—BEARING.

BEARD, *bērd*, JAMES HENRY: artist: 1814–1893, Apr. 4; b. Buffalo, N. Y.; bro. of Wm. H. B. Most of his childhood was spent in Ohio. He lived many years in Cincinnati, where he became famous as a portrait-painter, John Quincy Adams, Henry Clay, and other public men being among his patrons. He removed to New York 1870, and became very successful in animal-painting. In 1848 he became an honorary member of the National Acad., and was elected member of that soc. 1872. Among his noted works are: *North Carolina Emigrants*, *Mutual Friend*, *Don Quixote and Sancho Panza*, *The Mississippi Flood*, *Barn-Yard*, *Blood Will Tell*, *Heirs at Law*, *Detected Poacher*, *Consultation*, *Which Has Preëmption?*, and *'ll yer gimme some? Say!*

BEARD, RICHARD, D.D.: 1799, Nov. 27—1880, Dec. 2; b. Sumner co., Tenn. His early education was limited; but after careful study for the ministry he was licensed and began preaching 1820. His health failing, he became a prof. of languages (1832) at Cumberland Coll., Princeton, Ky., where he had graduated. He then spent five years in Sharon Coll., Sharon, Miss. 1843–54 he was pres. of Cumberland Coll., but on the establishment of a chair of systematic theology at Cumberland Univ., Lebanon, Tenn., 1854, he was chosen to the position, which he held until his death.

BEARD, WILLIAM HOLBROOK: artist: b. 1825, Apr. 13, Painesville, O.; bro. of James Henry B. He began as a portrait-painter 1846, settling in Buffalo, N. Y., after five years of travel. He went to Europe 1856; studied in Germany, and painted in Italy, Switzerland, and France. He then returned to Buffalo, and removing to New York, 1860, he was elected member of the Acad. 1862. His works include genre and allegorical pictures; but in his later years he confined himself almost exclusively to paintings of animals, whose habits he humanized with pleasing satire. He died 1900, Feb. 20.

BEARDIE, *bērd'ī*: Scotch name for the little fish **LOACH** (q. v).

BEARD MOSS: see **USNEA**.

BEARING, of a ship at sea: the direction in which she sails, in reference to the points of the compass. Or, in a more comprehensive sense, it is the direction in which each of two objects is situated in reference to the other. When the latitudes and longitudes of two places are known, their respective bearings from each other can be calculated by trigonometry. On shipboard, seamen often conveniently refer the B. of another ship, or of an object on shore, not to the points of the compass, but relatively to the line followed at the moment by the ship's keel. Thus the B. of the distant object may be *ahead*, *astern*, on the *starboard bow*, on the *larboard quarter*, etc.; the bow being between the head and the midship, and the quarter between the midship and the stern.

Bearing, or rather the verb *to bear*, is much used as a

BEARING THE BELL—BEAR-PIT.

technical direction on shipboard. Thus, to 'bear in with the land,' to 'bear off from the land,' to 'bear up,' to 'bear away,' etc., are nearly equivalent to sailing, or steaming, or steering, in such and such directions.

BEARING THE BELL: taking the lead or the first place in anything, or carrying away the prize. The old colloquial phrase is said to have originated in a practice, at the early part of the 17th c., of giving a small golden or silver bell as a prize to the winner at horseraces. See **BELL**.

BEAR LAKE, GREAT: in British America, n. lat. 65° – 67° , w. long. 117° – 123° ; the most northerly of that chain of fresh-water seas—Huron, Superior, Winnipeg, Athabasca, Great Slave, Great Bear—which mark a continuous hollow in the middle of the continent. Great Bear Lake is irregular in shape, with a surface estimated at 7,000 sq. m., about equal to the area of N. J. It sends forth a river of its own name to the Mackenzie. Its height above the ocean is computed at 230 ft. The rigor of the winter may be inferred from the fact, that boats are sometimes blocked up by solid ice, after the crews have begun to suffer from the heat and the mosquitoes.

BEAR-LEADER: jocular term (from a practice in former times) for a discreet person who takes charge of a distinguished youth on his travels to see the world. In former times, bears were led about with a chain, muzzled, and made to dance or stand on their hind legs for popular entertainment; small dancing-dogs being usually added, for the sake of attractiveness.

BEARN, *bā-ar'*: formerly one of the 32 provinces into which France was divided; now forming the greatest portion of the Basses-Pyrénées. B. was a portion of Aquitania under the Romans, and after the downfall of that empire, under its ruling dukes it was a country of considerable importance. From the intermarriage of the ruling family, the Counts of Foix, with that of Navarre, sprang the French monarch Henry IV., who, because he was born and brought up in B., was derisively called the Bearnois. When he ascended the throne of France, it, of course, virtually became a part of that country; but was only formally incorporated with it, 1620, by Louis XIII. In 1813, after the British had crossed the Nive, and established themselves in Urogne, St. Jean de Luz, etc., the rich fields of B. furnished them ample supplies, the peasants taking their produce, for which they were well paid, as regularly to the British stations as to market.

BEAR-PIT: a pit prepared for the keeping of bears, usual in zoological gardens. A pit of this kind is circular, measuring about 25 ft. in diameter, and 20 ft. deep. The sides are built with brick; the bottom is level, and paved with stone; and around are vaults with doors for the residence of the bears. From the centre of the pit rises a stout and tall pole, on which are cross spars at proper distances, to enable the bears to climb to the top. They are fond of climbing up these poles, and catching morsels of bun from

BEAS—BEAT.

the visitors. The poles are sufficiently distant from the sides to prevent the bears from leaping out. The vaulted receptacles require to be cool and dry.

BEAS, *bē'ās*: anciently *Hyphasis*: one of the five rivers which give name to the *Punjab*, or land of five waters—Jelum, Chenab, Ravee, Beas, and Sutlej. It rises on the verge of the Ritanka Pass of the Himalaya, lat. 32° 34' n., long. 77° 12' e., its source being 13,200 ft. above the sea-level. After a course of about 290 m. it joins the Sutlej, 35 m. to the s.s.e. of Amritsir. It is subject to periodical rises and falls, being in the dry season generally fordable; but after the rainy months, it is sometimes nearly half a mile in breadth about 20 m. above the point of confluence.


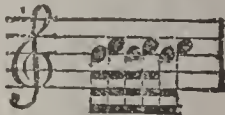
BEAST, n. *bēst* [Gael. *biast*; Dut. *beest*; L. *bestiā*, a beast: F. *bête*; OF. *beste*, a beast]: any four-footed animal; a person rude, coarse, and filthy. BEAST'LY, a. *-lī*, like a beast. BEAST'LINESS, n. *-lī-nēs*, great coarseness; filthiness. BESTIAL, a. *bēst'yāl*, pertaining to a beast, or having the qualities of one. See BESTIAL. BEAST-LIKE, a. resembling a beast. BEAST-FLY, n. a gadfly. BEAST-MILK, n. the first milk given by a cow after calving.—SYN. of 'beastly': brutish; brutal; bestial; coarse; filthy.

BEAT, v. *bēt* [AS. *beatan*; Icel. *bauta*; It. *battere*; F. *battre*, to beat or strike (see BATTER)]: to knock; to strike; to strike repeatedly; to crush or mix by blows; to overcome in a fight, contest, or competition; to throb like the pulse: N. a stroke; a throb; the rise or fall of the hand or foot to mark the time in music. BEATS, n. plu., rhythmic sound-waves formed when two notes not in unison are sounded together. BEAT'ING, imp. BEATEN, pp. *bēt'n*: ADJ. made firm and smooth by treading; made common by use. BEAT'ER, n. one who; a crushing instrument. BEAT OF DRUM, a succession of beats on a drum varied for particular purposes, as to call to arms or quarters. To BEAT ABOUT, to search diligently for. To BEAT DOWN, to decry; to lower the price. To BEAT HOLLOW, to defeat thoroughly. BEAT ABOUT THE BUSH, not coming directly to the point, but feeling the way indirectly. To BEAT OFF, to drive back. To BEAT TIME, to regulate time by the measured motion of the hand or foot. To BEAT OUT, to extend by hammering. To BEAT THE GENERALE, to give notice to soldiers to march. To BEAT THE TATTOO, to give notice to soldiers to retire to quarters. To BEAT TO ARMS, to summon soldiers to get ready their arms and prepare for battle. To BEAT A PARLEY, to give a signal to an enemy for a conference. To BEAT UP, to attack suddenly, as an enemy's quarters; to sail against the wind by alternate tacks. To BEAT UP FOR, to go diligently about in order to procure. DEAD BEAT, so completely vanquished as to have no heart or life for a further contest. To BEAT A RETREAT, to retire from the contest. BEATING ORDERS, authority issued to a recruiting party to enlist men for the army. WITHOUT BEAT OF DRUMS, without ostentation; quietly. POLICE-MAN'S BEAT, district or limit to be walked over and watched by a policeman. BEATER UP, one who searches for and

BEAT—BEATING THE BOUNDS.

starts game for a sportsman. **BEATING-ENGINE**, in *paper manuf.*, an engine for cutting rags to pieces that they may be converted into pulp. It consists of two concentric cylinders, the outer one hollow, each armed with knives to operate as they revolve; in *cotton manuf.*, the same as **BEATING-MACHINE**, a machine for opening, loosening, and cleaning cotton from dust or other rubbish before beginning its manufacture; called also a *scutcher*, a *willower*, an *opener*, a *wolf*, a *devil*. (*Knight's Dic. of Mechanics*).—**SYN.** of 'beat, v.': to strike; hit; defeat; vanquish; overcome; conquer; overpower; overthrow; rout; pound; bang; buffet; bray; bruise; break; maul; pommel; thrash; thwack; baste; thump.

BEAT, in Music: a species of embellishment, written

thus,  and played as follows: 

BEATIFICA'TION: a solemn act in the Rom. Cath. Church, by which the pope, after scrutinizing the life and services of a deceased person, pronounces him blessed. After this he may be venerated in a specified portion of the church, and the act holds out the prospect of future canonization, which exalts him to the place of a saint in the church universal. B. was introduced in the 12th c. It may be regarded as an inferior degree of canonization (q.v.).

BEATIFY, v. *bē-ăt'î-fî* [F. *beatifier*—from L. *bēātus*, happy; *fîō*, I am made]: to make happy; to bless with complete enjoyment in heaven. **BEAT'IFYING**, imp. **BEAT'IFIED**, pp. *-fîd*. **BEATIFIC**, a. *bē'a-tîf'îk*, or **BE'ATIF'ICAL**, a. *-î-kāl*, that has the power to make happy. **BE'ATIF'ICALLY**, ad. *-lî*. **BEATIFICATION**, n. *bē-ăt'î-jî-kā'shŭn*, in the *R. Cath. Ch.*, the pronouncing of a deceased person to be blessed; the first step towards canonization. **BEATITUDE**, n. *bē-ăt'î-tŭd* [F.—L.]: happiness of the highest kind. **THE BEATITUDES**, n. plu., the blessedness pronounced by our Lord on the exercise of the virtues, Matt. v.

· **BEATING AND WOUNDING** (or simply *wounding*): name sometimes found in law-books for the offense of inflicting on another some dangerous hurt or wound; and it has otherwise been described as an aggravated species of Assault and Battery. See **ASSAULT**. A still more aggravated and atrocious offense of this kind used to appear in the list of offenses against the criminal law of England under the term **MAYHEM**, which was a violently depriving another of the use of a member proper for his defense, such as an arm, a leg, a finger, an eye, a fore-tooth, and some others; but it was laid down quaintly, that the loss of one of the jaw-teeth, the ear, or the nose, was no mayhem in common law, because these members can be of no use in fighting.

BEATING THE BOUNDS: popular expression in England for those periodical surveys or perambulations

BEAT OF DRUM—BEATON.

by which the ancient boundaries of parishes are preserved: the correct legal term is *Perambulation* (q.v.). The procedure, according to common custom, is in this wise: On Ascension Day, the clergyman of the parish, with the parochial officers and other parishioners, followed by the boys of the parish school, headed by their master, go in procession to the different parish boundaries, which boundaries the boys strike with peeled willow-wands that they bear in their hands, and hence the expression beating the bounds. See Brand's *Popular Antiquities*, vol. i. p. 174, 175; Lyson's *Environs of London*, vol. ii. p. 146; Hone's *Every-day Book*, vol. i. p. 651; Steer's *Parish Law*, by Hodgson; and Toulmin Smith's *Parish Law*.

According to these and other old authorities, the beating was not confined to the above performance of the boys with their willow-wands; but where it was desired to preserve evidence of particular boundaries, the singular expedient was used of whipping the boys themselves on the spot, or one of them, who received a stated fee for the permitted castigation out of the parish funds—it being thought that the impression made on the memory of the whipped boy was calculated to have a beneficial effect on the preservation of his evidence. A similar ceremony appears anciently to have prevailed in Scotland, and for the same purpose. See Lord Stair's *Institutes of the Scotch Law*, book iv., title 43, s. 7, where it is stated that the boys were 'sharply whipped.'

BEAT OF DRUM, in Military Matters: a signal or instruction conveyed by a particular mode of drum-beating. It is an audible semaphore, a telegraph that speaks to the ear instead of the eye. There are many varieties, known by the names of the general, the reveillé, the assembly, the foot-march, the grenadier's march, the retreat, the taptoo or tattoo, the call to arms, the call to church, the pioneers' call, the sergeants' call, the drummers' call, the chamade, the rogue's march, the long roll, etc. Some of the same instructions or commands are also given by the bugle, and some by the trumpet.

BEATON or **BETHUNE**, *bē'tūn*, DAVID, Cardinal and Primate of Scotland: 1494–1546, May 29; a younger son of John Beaton of Balfour, Fifeshire; descended from a celebrated French family: zealous opponent of the Reformation. B. studied at the Univ. of St. Andrews; and afterwards theology and the canon and civil laws at Paris; and was preferred by his uncle, James Beaton, Abp. of Glasgow, to the rectory of Campsie, Stirlingshire. His tact and general abilities recommended him to the Duke of Albany, regent during the minority of James V., who, 1519. appointed him resident for Scotland at the French court. In 1525, he took his seat in the Scots parliament as Abbot of Arbroath. In 1528, B. was appointed Lord Privy Seal, and is said to have been the adviser of James V. in instituting the College of Justice or Court of Session in Scotland, the idea of which was suggested by the constitution of the parliament of Paris. B. subse-

quently became Prothonotary Public, and was twice sent ambassador to France, to negotiate James's two marriages—first, with the French king's daughter, Princess Magdalene, who died six months after her nuptials; and secondly, with Mary, Duchess of Longueville, daughter of the Duke of Guise. The king's union with the latter he solemnized, 1537, in the cathedral church of St. Andrews. During his residence at the French court, he was admitted to all the privileges of a French citizen, and appointed by Francis I. Bishop of Mirepoix in Languedoc. After his return, he became coadjutor to his uncle in the see of St. Andrews, and, 1538, Dec. 28, on the recommendation of the king of France, was, by Pope Paul III., elevated to the dignity of a cardinal. On his uncle's death, 1539, he succeeded him as Abp. of St. Andrews and Primate of Scotland, and soon commenced a furious persecution of the Reformers, already numerous and increasing. That he might be invested with supreme authority in all matters ecclesiastical, he obtained from the pope the appointment of *legatus a latere* in Scotland, and induced the king to institute a court of inquisition, to inquire after heretics in all parts of the kingdom. To maintain the French influence, and prevent all danger to the Rom. Cath. Church in Scotland by a friendly connection with England, he contrived to frustrate a proposed meeting of King James with his uncle, Henry VIII., and even prevailed on the former to declare war against his royal relative. On the death of James, after the disastrous overthrow of the Scots at Solway Moss, 1542, Dec. 14, B. produced a forged will of the late king, appointing himself, with three others, regents of the kingdom during the minority of the infant Queen Mary. The nobility, however, rejected the fictitious document, and elected the Earl of Arran regent, who then professed the reformed faith. The following month, B. was arrested and imprisoned, accused, among other charges, of a design to introduce French troops into Scotland, in order to stop the negotiations then in progress with Henry of England for a marriage between the young Prince of Wales, afterwards Edward VI., and the infant Queen of Scots. He was soon after liberated, and reconciled to the regent, whom he induced to abandon the English interest, and publicly to abjure the reformed religion. On the young queen's coronation, 1543, B. was again admitted of the council, and appointed chancellor. He now renewed his persecution of the Reformers; and, 1546, Jan., accompanied by the regent, he made a diocesan visitation of the counties under his jurisdiction, and punished with the utmost severity all Protestants that he could find. At Perth, a number of persons, accused of heresy, were banished the city, others were imprisoned; three men were cruelly hanged, and one woman drowned, by his directions. During a provincial council of the clergy held at Edinburgh, at which he presided, he caused the celebrated evangelical preacher, George Wishart, to be apprehended, and conveyed to the castle of St. Andrews, where he was burnt at the stake, B. and other prelates witnessing his

BEATRICE—BEAU.

sufferings from a window. A conspiracy having been formed against him, at the head of which were Norman Leslie and his brother, B. was assassinated in his own castle of St. Andrews. Though endowed with great talents, B. had little learning. He is said, however, to have written *Memoirs* of his own embassies: a treatise on *St. Peter's Supremacy*; and *Letters to Several Persons*, of which Dempster observes there are several copies extant in the Imperial Library at Paris. Haughty, cruel, and intolerant, he was also licentious in the extreme. He had six natural children, three sons and three daughters—the latter married into families of distinction. One of his sons became a Protestant. His death was scarcely lamented by any party in the state.

BEATRICE, *bě'ă-trīs*: city, cap. of Gage co., Neb.; on the Big Blue river, and on the Burlington and Missouri River, the Chicago Kansas and Nebraska, and the Union Pacific railroads; 40 m. s. of Lincoln, 90 m. s.w. of Omaha. It has excellent water-power; Holly system of water-works; gas and electric light plants; telephonic communication with all important places in the state; 2 street railroads, with nearly 20 m. of track; 4 national banks (cap. \$350,000, surplus \$96,250), 4 state banks (cap. \$177,500), and 2 investment and loan companies (authorized cap. \$300,000); State Institution for Feeble-minded Children (cost \$75,000); 20 church organizations, 19 church buildings (Meth. Episc., brick, cost \$30,000; Prot. Episc., stone, cost \$35,000); 9 public-school buildings (cost \$120,000); public park; U. S. land office; and 2 daily and 4 weekly newspapers. The industries comprise pump and wind-mill factory; oatmeal, flour, paper, and starch mills; brick, tile, and cement works; canning factory; and magnesian limestone quarries of excellent building stone. Pop. (1880) 2,447; (1890) 13,836; (1900) 7,875.

BEATRIX, n. *bě-ă' trīks* [L.L., from class. L. *beata*, fem. of *beatus*, happy; *leo*, to bless]: an asteroid, the 83d found; discovered by De Gasparis, at Naples, 1865, April 26.

BEATTIE, *bě'tī*, Scot. *bā'tī*, JAMES: 1735, Oct. 25—1803, Aug. 18; b. Laurencekirk, Scotland: poet. He gained reputation as a classical scholar at Marischal College, Aberdeen; was appointed master of a grammar school there 1758, and prof. of moral philosophy in Marischal College 1760; and published his famous *Essay on Truth* 1770. In 1771 he brought out the first part of *The Minstrel*, 1774 the second part; 1776 published essays on *Poetry, Music*, etc.; 1783 *Dissertations, Moral and Critical*; 1786 *The Evidences of the Christian Religion, briefly and plainly stated*; and 1790–93 *The Elements of Moral Science*. He declined preferments in the Established Church.

BEAU, n. *bō* [F. *beau*; OF. *bel*, good, fair—from L. *bellus*, gay, handsome]: a gay man who attends much to dress; in *familiar language*, a man who pays attention to a lady; a lover. BEAUX, n. plu. *bōz*. BEAUSH, a. *bō'ish*, like a beau; foppish. BEAUCLERC, a. *bō'klárk* [F. *beau*, good; *clerc*, a priest, a scholar]: applied to Henry I., who

BEAUCAIRE—BEAUCHAMP.

possessed an amount of learning very rare in those times among any but the clergy. **BEAU-ESPRIT**, n. *bō'ēs-prē* [F.]: a man of wit. **BEAU-IDEAL**, n. *bō'ī dē'āl* [F. *beau*; *ideal*, imaginary]: an imaginary standard of absolute perfection; a model of excellence in the mind or fancy. **BEAU-MONDE**, n. *bō-mōngd'* [F. *beau*, good, fair; *monde*, the world]: polite people; the fashionable world.

BEAUCAIRE, *bō-kār'*: well-built commercial town of France, on the right bank of the Rhone, dept. of Gard, opposite Tarascon, with which it is connected by a magnificent suspension bridge. The harbor is commodious for vessels, which enter it by a canal communicating with the Mediterranean, and avoiding the sand-banks at the mouths of the Rhone. The main feature of B. is its great annual fair, established 1217 by Count Raymond of Toulouse. It begins July 15, and lasts 6 days. In former times, when this fair was free from duties, it was attended by merchants and manufacturers from almost all parts of Europe, from the Levant, and even from Persia and Armenia; and as the small town could not contain the vast concourse of traders, thousands of wooden huts and of tents were erected in the neighboring valley. But the numerous imposts demanded since 1632, foreign wars, and the competition of Marseille, Lyon, and other large places, reduced the traffic of B., which sank still lower in the days of the Revolution. The fair, however, is still held in much repute, the number attending it being estimated at 50,000, and the amount of property changing hands at \$6,000,000. The chief articles of commerce are silks, wines, oil, almonds, and other fruits, spices, drugs, leather, wool, and cotton. B. appears to have been known in ancient times as Ugernum, which, in the 7th c., was a place of importance in a military point of view. Pop. (1881), 8,309; (1891) 9,724.

BEAUCHAMP, *bō-shōng'*, ALPHONSE DE: 1767–1832, June 4; b. Monaco: French historian and publicist. He was educated in Paris and entered the Sardinian military service. At the outbreak of the war with France, he refused to bear arms against the republic, and obtained his discharge; but being suspected of treasonable designs, he was imprisoned for some months. After his liberation, he returned to Paris, where he took part against Robespierre; and on the establishment of the Directory, obtained a situation in the office of the minister of police, and had the surveillance of the press. Here he commenced his *Histoire de la Vendée et des Chouans* (3 vols., Par. 1806; 4th ed., 1820), for which Fouché supplied the materials. As this work displeased the emperor, B. was banished to Rheims, but was recalled, 1811, and again received a subordinate appointment on condition that he should publish nothing concerning his political contemporaries. Under the Restoration, he received a pension (1820), and wrote for the *Moniteur*, the *Gazette de France*, and the *Biographie des Hommes Vivants*, edited by Michaud. The numerous historical writings of B. are interesting, but bear the impress of party-spirit; but in his *Histoire du Brésil* (Par. 1815), and *Histoire de la Conquête du Pérou* (Par. 1807), he found no opportunity of expressing his political

BEAUFET—BEAUFORTIA.

partialities. Among his works may be mentioned the *Histoire de la Campagne de 1814-15* (2 vols., Par. 1818), the *Histoire de la Révolution du Piémont*, directed against De la Rosa (Par. 1823), and *Vie de Louis XVIII.* (Par. 1825). After the July revolution, he was employed on several legitimist journals; and the supposititious *Mémoires* of Fouché (4 vols., Par. 1828-9) have, with good reason, been ascribed to Beauchamp.

BEAUFET, n. *bō'fā*: see BUFFET.

BEAUFORT, *bō-fōr'*: village of Maine-et-Loire, France, which, with its castle, came into the possession of the English House of Lancaster in the 13th c., and gave origin to the English title of Duke of B. The Dukes of B. are descended from John of Gaunt.

BEAUFORT, *bō'fort*: town of Cape Colony, s. Africa, 338 m. n.w. of Cape Town, with which it is connected by rail; cap. of an electoral division, with an area of 8,536 sq. m. Pop. of B. about 2,000.

BEAUFORT, *bū'fort*, CARDINAL, and Bishop of Winchester; abt. 1370-1447; natural son of John of Gaunt, Duke of Lancaster; half brother to King Henry IV. He was educated in England and Germany and in 1404 became B. of Winchester. He repeatedly filled the office of lord chancellor and was involved in all the most important political movements of his times. He was present at the Council of Constance, and voted for the election of Pope Martin V., by whom he was subsequently made a cardinal. When the cardinal's nephew, Henry V. of England, proposed to levy a new impost on the clergy, in order to raise money for carrying on the war against France, B. was the chief opponent of the measure; but nevertheless he lent the monarch, out of his own private purse, £28,000—an almost incredibly large sum in those days, and one which justifies the belief that he was the wealthiest subject of his time in England. His service in this affair was soon recognized by the pope, who sent him as legate into Germany, there to organize a crusade against the followers of John Huss. This undertaking failed; and the cardinal, having expended, in levying an English army against France, the moneys granted from Rome for other purposes, fell under papal displeasure. In 1431, B. conducted the young Henry VI., to France to be crowned in Paris as king of France and England. Here he also endeavored, but vainly, to reconcile the Duke of Bedford, Regent of France, with the offended Duke of Burgundy. Cardinal B. died at Winchester. His memory is stained by his suspected participation in the murder of his great political rival, the Duke of Gloucester, who headed the lay opposition to the despotism of ecclesiastical statesmen; and by the fact, that he presided over the tribunal which sentenced the Maid of Orleans to perish at the stake.

BEAUFORTIA, n. *bō-fōr'tī-a* [named after *Mary, Duchess of Beaufort* (died 1714)]: genus of plants belonging to the order *Myrtaceæ* (Myrtleblooms). The species, which are not numerous, come from Australia. They are splendid evergreen shrubs.

BEAUFREY—BEAUHARNAIS.

BEAUFREY, n.: a beam or joist.

BEAUGENCY, *bō-zhōn-sē'*: ancient town of France, in the dept. Lōiret, on the right bank of the Loire, 15 m. s.w. of Orleans. B. was formerly surrounded by walls, flanked by towers and bastions, and defended by a strong castle, now ruined. In the history of the wars of France, B. is conspicuous. It was successively in the hands of the Huns, Saxons, Normans, and English, but it sustained most damage during the religious wars of the 16th c. B. manufactures woollens, leather, etc., and has a trade in wine, wool, and corn. Pop. (1891) 4,313.

BEAUHARNAIS, *bo-âr-nā'*, ALEXANDRE, Vicomte de: 1760-94, July 23; b. in the island of Martinique; served, under Marshal Rochambeau, in the American War of Independence. Afterwards, he went to France, but though well received by the French court, he embraced the popular cause. Elected deputy to the states-general by the nobility and the justiciary authorities of Blois, he was among the first of his order to fraternize with the *Tiers État*, or democratic party. On the night of 1789, Aug. 4, he voted for the abolition of all privileges, and the political equality of all citizens. As a reward he was named sec. of the national assembly, and subsequently member of the military committee, but lost his popularity considerably by venturing to praise and defend the conduct of General Bouillé in the sanguinary suppression of the insurrection at Nancy. The manner in which he received the news of the flight of Louis XVI. exhibits a curious mixture of contempt and dignity. 'Gentlemen,' said he to the assembly over which he presided, 'the king has just gone off; let us pass to the order of the day.' In 1793, he declined the office of minister of war, and tendered his resignation as general of the Army of the Rhine, because it had been determined to exclude the nobility from the service. During the Reign of Terror, his enemies revived the report that he had participated in the surrender of Mentz, because he had remained idle with his troops for 15 days. In consequence of this accusation, he was called from his country residence at Ferté-Imbault to Paris, where he was tried and sentenced to death by the revolutionary tribunal. He submitted to his fate with firmness, and died on the scaffold, aged 34 years. His widow, Josephine, married Napoleon Bonaparte, who adopted Eugène and Hortense, son and daughter of Beauharnais. Hortense was married to Louis Bonaparte, King of Holland, and became the mother of Louis Napoleon, late emperor of the French. See BONAPARTE.

BEAUHARNAIS, EUGÈNE DE: Viceroy of Italy during the reign of Napoleon I.; afterwards Duke of Leuchtenberg, and Prince of Eichstadt: 1781, Sep. 3-1824, Feb. 21; son of the Viscount Beauharnais. After his mother's marriage with Bonaparte, B. accompanied him in his campaigns in Italy, and in the expedition to Egypt. He rapidly rose to the highest military rank; and in 1805, after the erection of the imperial throne, he was made a Prince of France and Viceroy of Italy. In 1806, he married the Princess Amalie

Augusta of Bavaria, and not long afterwards was created Prince of Venice, and declared by Napoleon his adoptive son, and heir of the kingdom of Italy. Although his political power was much limited, he conducted himself in Italy with much prudence, energy, and moderation, and in all the various scenes of his life maintained an honorable and virtuous character. It is to be regretted, however, that he considered himself so entirely a vassal of Napoleon, and bound to carry out the often harsh decrees of the latter in regard to Italy. His military talents were great, and were displayed particularly in the Italian campaigns, in the wars against Austria, and in the retreat from Moscow, in which the preservation of the French army from total destruction was very much to be ascribed to the skill and resolution of the viceroy and of Ney. The victory of Lützen was decided by his conduct in that battle. Napoleon sent him from Dresden to Italy, which he ably defended, even after Austria had joined the coalition, and Murat had deserted the cause of the French empire. After the fall of Napoleon, B. entered into a convention with Count Bellegarde. In the affairs of the Hundred Days, he took no part; and in the treaty of Fontainebleau and Congress of Vienna, he was allowed to retain his possessions in the March of Ancona; and large sums were granted to him in compensation for his other Italian possessions, with which he purchased from his father-in-law the landgraviate of Leuchtenberg and principality of Eichstadt, and took his place as Duke of Leuchtenberg among the nobles of Bavaria. He died at Munich.—His eldest son, CHARLES AUGUSTUS NAPOLEON, Duke of Leuchtenberg, married the Queen Donna Maria of Portugal, 1835, Jan. 25, but died March 25. Another son, MAX EUGÈNE JOSEPH NAPOLEON, who succeeded his brother as Duke of Leuchtenberg, married the Grand Duchess Maria Nikolajewna, daughter of the Emperor Nicholas of Russia; and his children bear the name of Romanowski, and are ranked among the members of the Russian imperial family. He died 1852, Nov. 1, of disease of the lungs, consequent upon a scientific tour in the Ural. He was a zealous mineralogist, and left large collections, preserved at St. Petersburg.

BEAUMARCHAIS, *bō-mâr-shā'*, PIERRE AUGUSTIN CARON DE: 1732, Jan. 24—1799, May 17; b. Paris; son of a watchmaker, and brought up to his father's trade, but became a poet. He early attained proficiency as a player on the harp and the guitar, and was appointed music-master to the daughters of Louis XV. He married, and turned to literature. His first play, *Eugénie* (1767), was successful, and was followed by *Les Deux Amis* (1770). Having become involved in lawsuits with Lablache and Götzman, he revenged himself on the latter—who was a member of the so-called *Parlement Maupeou*—by publishing his famous *Mémoires* (Paris, 1774), which united the bitterest satire with the sharpest logic, and gained for him a reputation that made even Voltaire uneasy, who could not bear a rival in his own department. Despite his wit, however, he lost his suit. His fame now rests on his two comedies, *Le Barbier*

BEAUMARIS—BEAUMONT.

de Séville (1775), and *Le Mariage de Figaro*. Of his later works may be mentioned *Mes six Époques*. Desire of gain and love of distinction seem his leading motives. His literary merits have been differently estimated. The most judicious critic of his writings and character is M. de Loménie, whose *B. and his Times* is full of interesting literary anecdote. An edition of B. was published at Paris, 1809.

BEAUMARIS, *bō-mā'ris*: seaport and chief town of Anglesea, n. Wales; on the w. side of the picturesque Bay of B., near the n. entrance to the Menai Strait, 3 m. n. of Bangor, and 239 m. n.w. of London. B. has the ivy-covered remains of a castle, erected by Edward I., and a free grammar school, and is a favorite sea-bathing resort. The bay is a safe anchorage. The principal buildings are the town-hall, county-hall, custom-house, assembly-room and national school. Pop. (1881) 2,241; (1891) 2,202.

BEAUMONT: city and cap. of Jefferson Co., Tex.; on the Neches River and several railroads; 80 miles n. e. of Houston. It is the centre of a large rice district; is an important shipping point at the head of tidewater navigation; and has a variety of manufactures. In 1901 it became the centre of a newly-discovered petroleum field, the largest in Texas. Pop. 9,427.

BEAUMONT, *bō'mōnt*, FRANCIS: poet and dramatist—FLETCHER, JOHN: poet and dramatist: writers so closely associated in their lives and labors, that their names have become indissolubly united.—FRANCIS BEAUMONT, third son of Sir Francis Beaumont, one of the justices of the Common Pleas; 1586–1615; b. at Gracedieu, in Leicestershire, ten years after Fletcher; and died ten years before him. When ten years of age, he became a gentleman-commoner of Broadgate Hall (now Pembroke Hall), and in 1600 was admitted a member of the Inner Temple. Two years thereafter, he published certain translations from Ovid. When about nineteen years of age, he became the friend of Ben Jonson, and wrote commendatory verses to some of his dramas. At the theatre, which attracted to its service most of the intellect and wit of the time, he became acquainted with Fletcher, and, drawn together, they lived in the same house till B.'s marriage, 1613. He married Ursula, daughter and co-heir of Henry Isley of Sundridge, in Kent, by whom he had two daughters. He died at the early age of thirty, and was interred in Westminster Abbey. Poetry seems to have run in the blood of the Beaumonts. Several members of B.'s immediate family wrote verses, and the elder brother of the dramatist, Sir John Beaumont, is said by the critics to have much improved our rhyme couplet.

JOHN FLETCHER: 1576–1625; son of a clergyman who was for some time incumbent of Rye, in Sussex; thereafter, Dean of Peterborough, and said to have attended Queen Mary on the scaffold, and to have embittered her last hours with irrelevant exhortation. On his elevation to the see of London, he married a second time, and thereby procured the disfavor of the Virgin Queen. He died shortly afterwards. John entered Bennet College, Cambridge, 1591,

Oct. 15, where he acquired some reputation for classical erudition. It is uncertain whether he took a degree. The *Woman-hater*, produced in 1606-7, is the earliest known play of his. His circumstances in life are not recorded. The last four years of his life produced eleven new plays—a swiftness surpassing that of Shakspeare himself. Tarrying in London, it is said, for a suit of new clothes, he caught the plague, and died, and was buried in the church of St. Saviour's. Fletcher could boast of poetic descent and connection. Dr. Giles Fletcher, the bishop's younger brother, has been called 'an excellent poet;' and two sons of his, Giles and Phineas, distinguished themselves by their verses: one wrote *Christ's Victory and Triumph*; the other, *The Purple Island*.

The works of B. and F. comprise in all 52 plays, a masque, and several minor poems; but it is difficult to allocate, in any satisfactory manner, the authorship of these. F., being the longer-lived and more prolific writer, contributed the largest share. Rowley assisted F. in *The Maid of the Mill*. Some critics think that the hand of Shakspeare may be detected in *The Two Noble Kinsmen*, and not without some show of reason. There is a tone of music and a step of thunder in some of the passages to which no parallel is found in any of the companion-dramas. Two plays left unfinished at F.'s death were completed by Shirley. Out of the 52 plays, B. is supposed to have had a share in the composition of 17, and only three out of that small number were, during F.'s lifetime, published as joint productions. Two of these—*Philaster*, and *The Maid's Tragedy*—are, with the exception of the great passages in *The Two Noble Kinsmen*, the glory of the collection. The question has been often discussed, why these plays are called by the name of B. and F., thus giving precedence to the younger and less voluminous writer. Mr. Dyce thinks, that of the three plays published as joint productions during F.'s life, B. had either the greater share, or that, through feelings of natural courtesy, F. placed the name of his deceased associate before his own, and that future editors naturally followed the arrangement which they found to their hand. Mr. Darling is inclined to give no reason at all, and ascribes the whole thing to accident. From all that can be gathered, it appears that B. possessed the deeper and more thoughtful genius; F., the gayer and more idyllic. There is a strength as of granite rock in *The Maid's Tragedy*; There is a glad, exuberant music, and a May-morning light and freshness, in *The Faithful Shepherdess* (pub. abt. 1610), which Milton did not disdain to accept as a model in the lyrical portions of *Comus*, and of which the *Endymion* of Keats is but an echo. In these plays, B. and F. are brilliant, gay gentlemen. They never sound the deep sea of passion; they disport themselves, dolphin-like, on its surface. They have no power of serious characterization, and their numerous creations are seldom consistent; but they say the most apt, pleasant, and glancing things. Morally, little can be said in their praise. No audience of the present day could sit out the representation of their purest plays.

BEAUMONT—BEAUMONTITE.

Some of the impurest are almost beyond conception, yet there is an air of good-breeding about them, and the filth is handled in the most gentlemanly manner. In that great intellectual period in which B. and F. lived, Shakespeare stands conspicuous above the whole dramatic brotherhood no less by his purity than by his mental height. See *Francis Beaumont, a Critical Study*, by C. C. Macaulay (1883).

BEAUMONT, *bō-mōn'*, GUSTAVE DE: 1802, Feb. 6—1866; b. Beaumont-la-Chartre, in the dept. Sarthe; grandson of Lafayette, and, 1836, married his cousin, dau. of Georges Lafayette; studied law. B. and Tocqueville were commissioned, 1831, by the French government to study the prison-discipline of America. When B. returned to Paris, he received a place under government, but was soon deposed, as he refused to conduct the prosecution in the scandalous process against the Baroness de Feuchères. In 1840, he was elected deputy for the dept. Sarthe, and distinguished himself, as a member of the Opposition, by his information and readiness on all political questions. After the Revolution, 1848, Feb., he was returned as member of the legislative assembly, and maintained the character of a sincere but moderate republican. After 1851, Dec. 2, he was arrested and imprisoned in the fortress of Mont Valérien, and after regaining his liberty lived in retirement until his death. The writings on which B.'s reputation is founded are—*Note sur le Système Pénitenciaire* (1831); *Du Système Pénitenciaire aux États-Unis, et de son Application en France* (2 vols., 1832, partly by Tocqueville); *Marie, ou l'Esclavage aux États-Unis* (1835); and *L'Irlande, Sociale, Politique, et Religieuse* (1839).

BEAUMONT, JEAN-BAPTISTE ÉLIE DE: 1798–1874; b., Canon, Fr.; prof. of geology in the *Collège de France*. He was distinguished both as a practical geological investigator, and as a clear and acute speculator. The prevailing theory regarding the elevation of mountain systems was elaborated chiefly by him. He was occupied 23 years, in conjunction with Dufrenoy, in the preparation of a geological map of France, and its accompanying text. Among his writings are: *Coup d'Œil sur les Mines*, 1824; *Les Vosges*, 1829; *Voyage Métallurgique en Angleterre* (2d ed., 1837–1839); *Notice sur les Systèmes des Montagnes* (1852).

BEAUMONTAGUE, *bō'mon-tāg*: composition of iron borings, brimstone, pitch, sal-ammoniac, rosin, and bees wax, used to fill up cracks and flaws in an iron casting and so to give falsely an appearance of solidity. The ingredients are melted in a vessel over an open fire, and, when cooled, are rolled into small balls. When used, these are broken up, and a bit is inserted into the flaw. A red-hot iron passed over it forces the B. into the crevices of the faulty article, which, when finished, bears no trace whatever of having been foully dealt with.

BEAUMONTITE, n. *bō'mon-tīt* [named after the celebrated *Élie de Beaumont*, prof. of geology in the School of Mines at Paris, (born 1798)]: a mineral, a variety of Heulandite, found near Baltimore.

BEAUNE, *bôn*: cap. of an arrondissement in the French dept. Côte d'Or, formerly included in the Duchy of Burgundy; in a pleasant district on the river Bourzeoise, about 23 m. s.s.w. of Dijon. The town is well built; has a fine parish church, Nôtre Dame, founded 976 by Duke Henri of Burgundy; and a splendid hospital founded 1443 by Nicholas Rollin, chancellor of Philip, Duke of Burgundy. There are manufactories of serges, woolen cloth, and cutlery. There is considerable trade in Burgundy and Champagne wines. B. gives its name to one of the best of the Burgundy wines. Pop. (1896) 13,726.

BEAUNE, *bôn*, FLORIMOND DE: 1601–52; b. Blois, Fr.: distinguished mathematician, and friend of Descartes. His labors and discoveries contributed greatly to the improvement of the modern analytical geometry first introduced by Descartes. Algebra also was enriched by B.'s showing that, in equations to the fourth degree, the limits of positive roots might be found from the coefficients. B. may be regarded as the proper founder of the Integral Calculus, as he first endeavored to deduce the nature of curved lines from the properties of their tangents. The so-called 'B.'s Problem' (completely solved only by Jean Bernouilli), still given in the Integral Calculus, was for his time new and remarkable, it turns also on the determination of the nature of a curved line from a property of its tangent. The only work of his extant is *De Aëuationum Limitibus Opuscula duo, et Notæ Breves*.

BEAUREGARD, *bō'rè-gârd*, F. *bō-rè-gâr'* or *bōr-gâr'*, PIERRE GUSTAVE TOUTANT: 1818, May 28—1893, Feb. 20: soldier: b. near New Orleans. He graduated at West Point Milit. Acad. 1838, and was assigned to the artillery, but soon was transferred to the engineer corps. He was engaged in engineer work till the Mexican war, in which he served. He was twice wounded in the assault of the city of Mexico; was brevetted major; rose to the rank of capt. 1853: till 1861 superintended public works in the south, and then resigned his commission. By the confederate govt. he was appointed to command the defenses of Charleston, and opened fire on Fort Sumter 1861, Apr. 12. He was the Confederate commander in the first Bull Run battle; joined Gen. Albert S. Johnston in Tenn. 1862, and on Johnston's death took command of the army. Timely reinforcements after Shiloh enabled Gen. Grant to press the Confederates, and B. retreated in good order to Corinth, which, however, he was compelled to evacuate May 29. Again he commanded at Charleston with full rank of general 1862, Sep.—1864, Apr., confronting the formidable land and naval forces under Gen. Gillmore and Admirals Dupont and Dahlgren. B. reinforced Lee in Va., May, defeated Gen. Butler at Drury's Bluff, and held Petersburg. In Oct. he was dispatched to Ga. to resist Sherman. In Apr. he surrendered with General Joseph E. Johnston to Sherman in N. C. He published *Principles and Maxims of the Art of War*, and *Report of the Defense of Charleston*. After the war he returned to New Orleans, where he became pres. of

the New Orleans Jackson and Mississippi railroad, and manager, of the Louisiana state lottery. D. 1893.

BEAUTY, n. *bū'tī* [F. *beauté*, beauty—from OF. *bellé* and *bellét*—from mid. L. *bellūtātem*, beauty: It. *bello*; L. *bellus*, pretty, handsome]: the appearance and properties in any person or thing that please and delight the eye; those qualities in a thing that delight the mind or any of the senses; a lovely and pleasing person. BEAUTEOUS, a. *bū'tī-ūs*, pleasing; lovely. BEAUTEOUSLY, ad. *-lī*. BEAUTEOUSNESS, n. the state or quality of being beauteous. BEAUTIFUL, a. *bū'tī-fūl*, lovely; fair; elegant. BEAUTIFULNESS, n. the quality of being beautiful. BEAUTIFULLY, ad. *-lī*. BEAUTIFY, v. *bū tī-fī* [L. *fīō*, I am made]: to make beautiful; to adorn. BEAUTIFYING, imp. BEAUTIFIED, pp. *bū'tī-fīd*. BEAUTIFIER, n. one who adorns. BEAUTY-SPOT, n. a spot placed upon the face to direct the eye to something else, or to heighten some beauty; a patch; a foil (*lit.* and *fig.*).—SYN. of 'beautify': to adorn; embellish; deck; grace; ornament; decorate;—of 'beautiful': fine; handsome; pretty; lovely.

BEAUTY: see ÆSTHETICS: ART.

BEAUVAIS, *bō-vā'*: important manufacturing French town, cap. of the dept. Oise; in the valley of the Thérain (a tributary to the Oise); about 55 m. n.n.w. of Paris, surrounded by rising woodlands. Formerly B. was included in the old province, Ile de France. It is the residence of a bishop, and contains a literary and economical society, public library, museum, etc. Among its several fine buildings, the most noteworthy is its uncompleted cathedral, the choir of which is the loftiest as well as one of the finest specimens of Gothic in France. The manufactures of B. include woolen cloths, shawls, carpets, Gobelin tapestry, etc. B. is an ancient town. It was included in the country of the powerful *Bellovaci*, in *Gallia Belgica*, and was known by the Romans as *Cesaromagus*, afterwards as *Bellovacum*. In the middle ages, it was styled *Belvacum*. In 850, and at other times, B. was desolated by the Normans. The *Jacquerie*, or Peasants' War, broke out in the neighborhood of B., 1358, Mar. 21. In 1443, B. was besieged by the English, who were repulsed by the heroic self-sacrifice of Jean Lignière. Again, 1472, it was besieged by Charles the Bold of Burgundy, with an army of 80,000 men, when the women of B., under the leadership of the heroine Jeanne Lainé, surnamed La Hachette for her daring, displayed remarkable valor. The standard which the Burgundians had planted on the wall was torn down by Jeanne Lainé, and borne off by her in triumph. The banner is preserved in the town hall, and a procession, in which it is carried by young girls, annually commemorates the heroic deed. B. is the birthplace of the learned Dominican Vincent de Beauvais (*Vincentius Bellovacensis*). Pop. (1881) 17,516; (1891) 19,382; (1896) 19,906.

BEAVER.

BEAVER, n. *bē'vēr* [OF. *bavière*—from *baver*, to slaver]: the movable part of a helmet which covered the face, and was raised or let down to enable the wearer to eat or drink—so named from a fancied resemblance to a child's bib. See **HELMET**.

BEAVER, n. *bē'vēr* [AS. *beofer*; Dan. *bæver*; Ger. *biber*; F. *bièvre*, a beaver: L. *fiber*], (*castor fiber*): amphibious quadruped of the order *Glires*, or *Rodentia* (q.v.), valued for its fur, and for the peculiar substance called *Castoreum* (q.v.), which it yields, and also much noted for its instincts. Some naturalists regard the American B. as distinct from that of Europe and Asia; but the differences observable either in external or anatomical characters are inconsiderable; and the difference in instincts and habits is not proved to exist. If there is only one species of B., it is very widely distributed in the n. regions of the world, reaching in America almost as far s. as the Gulf of Mexico. It formerly existed in the British islands, where it has long been extinct; and it has become rare in Europe, in many parts of which it was common. It has become rare also in the United States, disappearing before man; but is nowhere so abundant as in that wide region of lakes and rivers which lies to the n.



Beaver.

and w. of the settled parts of N. America. Considerable numbers of beavers are found on the banks of the Obi and other rivers of Siberia, and in Kamtehatka.

The incisors or cutting teeth of the B. are remarkably strong, and exhibit in the highest degree the distinctive character of the order to which it belongs—the front of hard enamel, which in the B. is of a bright orange color; the back of the tooth formed of a softer substance, more easily worn down, so that a sharp, chisel-like edge is always preserved; the bulbs being also persistent, so that the teeth are continually growing, as by their employment in gnawing wood, they are continually being worn away. There are four flat molar teeth (or grinders) on each side in each jaw. Each foot has five toes: those of the fore-feet are short, and not connected by a web; those of the hind-feet are long, spreading out like the toes of a goose, and webbed to the nails. In accordance with this remark-

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able peculiarity, the B., in swimming, makes use of the hind-feet alone, the fore-feet remaining motionless and close to the body. Another character, to which nothing similar appears in any other rodent, is the large, horizontally flattened tail, which, except at the root, is not covered with hair, like the rest of the body, but with scales. The caudal vertebræ, however, do not exhibit a flattened form.

The B. is usually at least two ft. in length, from the nose to the root of the tail; the tail is of an oval form, about ten inches in length, fully three inches in greatest breadth, and scarcely an inch in thickness. These dimensions are sometimes exceeded. The general form of the animal is thick and clumsy, thickest at the hips, and then narrowing abruptly, so that it seems to taper into the tail. The head is thick and broad, the nose obtuse, the eyes small, the ears short and rounded. The fur consists of two kinds of hair; the longer hair comparatively coarse, smooth, and glossy; the under coat dense, soft, and silky. The color is generally chestnut, rarely black, spotted, or nearly white.

The B. is very aquatic in its mode of life, and it seldom wanders far from some lake or river. In consequence of its habits, it is also limited to wooded districts, and the northern range of the species is everywhere terminated by the limits of the wood upon the river-banks.

The food of the B. consists of the bark of trees and shrubs (birch, poplar, willow, etc.), and of the roots of water-lilies (*Nuphar luteum*) and other aquatic plants. In summer, it eats also berries, leaves, and various kinds of herbage. There is no reason to think that it ever, as has been supposed, kills or eats fish. Like some other rodents, it lays up stores of provisions for winter; but these, in the case of the B., consist chiefly of bark, or of branches, and even trunks of trees. Its extraordinary powers of gnawing are exerted to cut down trees of several inches in diameter, both for food, and for the construction of those houses and dams which have rendered it so much an object of admiration to mankind. A tree of 18 inches in diameter has been found thus cut down by beavers, although smaller ones are preferred; and when a tree of this size is cut, the branches only, and not the trunk, are employed in the architectural operations of the animals. These operations are very wonderful, although the statement, at one time commonly made, that beavers drive stakes into the ground is a mistake; and some of the other particulars which passed current with it are equally fabulous. The houses or lodges of beavers are grouped together near the edge of the water, the mud being scraped away from the front so that there may be a sufficient depth of water there to allow free egress, even during the most severe frost. The winter stores of the animals, consisting of piles or heaps of wood, are also always under water, at such a depth that they cannot be locked up in ice. When the depth of water is not sufficient, the beavers construct a dam across the stream, by the side of which the lodge is

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placed; the dam is sometimes as much as 300 yards in length, convex towards the current, and most convex in the strongest currents, sometimes extending on both sides beyond the natural channel of the stream. The materials of which it is composed are sticks, roots, and branches, with stones, moss, grasses, and mud strangely commingled, but in such a manner that the structure becomes absolutely water-tight. Branches of which the bark has been used for food, or taken off for winter provender, are very generally employed for building purposes. In their building beavers interlace small branches with each other and with the larger; and a B. kept in confinement has been known to manifest this instinct, by interlacing branches with the bars of its cage, while it also filled the interstices with carrots, and other vegetables, given it for food, nicely bitten to the proper size, and packed in snow, to protect itself from the cold. B. dams are built with the sides inclining towards one another, so that although ten or twelve ft. wide at bottom, they have a narrow top. The dams and houses are annually repaired, before winter comes on, the work being performed by night. 'In places,' says Hearne, 'which have been long frequented by beavers undisturbed, their dams, by frequent repairing, become a solid bank, capable of resisting a great force, both of water and ice; and as the willow, poplar, and birch generally take root and shoot up, they by degrees form a kind of regular planted hedge, which I have seen in some places so tall that birds have built their nests among the branches.' A broad ditch is often dug all around the lodge, so deep that it cannot freeze to the bottom, and into it the beavers make the holes by which they go out and bring their food. The larger lodges are in the interior, about seven ft. in diameter; and between two and three ft. high. The top is formed of branches of trees, matted with mud, grass, moss, etc. The walls are very thick, and the whole structure not only secures much warmth, but is a sufficient protection from wolves, wolverines, and other beasts of prey. Different apartments have often one common roof, but they have usually no internal communication. The sleeping-places of the animals are around the wall of their lodge, the centre being left free; they are formed merely of a little grass or tender bark of trees. A single house seldom contains more than ten or twelve beavers, but many such families are often congregated in one place. Beavers, both in a wild state and in confinement, are scrupulously cleanly in their habits.

Beavers often sit on the hind-feet and tail, and eat in this posture, holding up the food in their fore-paws. They also walk on the hind-feet, with support of the tail, when they carry materials to their buildings, except branches, which are dragged. They have considerable power in the tail, and not unfrequently flap it, which has given rise to an opinion, perhaps not altogether erroneous, that they use their tails for plastering their buildings, or beating and adjusting the mud which is employed in them.

Beavers do not usually eat in their lodges, but in holes

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or burrows in the bank of the river, the entrance to which is from beneath the water, and which thence proceed obliquely upwards, often to a distance of many feet. To these holes the beavers also flee when their lodge is broken up; and it is therefore a common practice of the B. hunters to break up the B. lodges, that they may take the animals in their holes or vaults. Beavers are also taken by nets and traps.

It is chiefly in winter that beavers congregate together. During summer, they wander about a little. The young are generally produced in April or May, from two to seven at a birth. Their eyes are open when they are born.

Single beavers are frequently met with, which live apart from all others of their species. All of these are males, which, it is supposed, have been conquered and driven away by others of their sex.

In the parts of N. America where beavers have now become rare, they live mostly in burrows in the river-banks, like those still found in Europe. Circumstances prevent them from following out their gregarious tendencies. That the beavers of Europe and Asia construct lodges and dams, when they have opportunity of congregating in sufficient numbers, appears to be no less certain than that those of America do so.

Large glandular pouches, two in number, closely connected with the organs of reproduction, contain the substance called *Castoreum* (q.v.). Its uses in the animal economy are not well known; they are probably analogous to those of musk, civet, etc.; but its peculiar pungent odor is so attractive to beavers, that use is made of it as a bait for B. traps.

The B. is very easily tamed; but no wooden cage will keep one confined. Except in the extraordinary building instincts already noticed, the animal exhibits no remarkable sagacity. The use of the B.'s fur for making hats is well known. See HAT. An act of the English parliament, 1638, prohibiting the use of any other material for hat-making, contributed to the rapid diminution of the number of beavers in the parts of N. America from which their skins were then obtained. During great part of the 18th, and the earlier part of the 19th c., the number of B. skins annually exported from America appears to have been not less than 200,000. It is now greatly diminished, but is still large. The flesh of the B. is much esteemed as an article of food by trappers and others who frequent the fur-countries, but it is very oily.

Fossil remains of beavers, apparently of the same species with that now existing, are found in the deposits referred by geologists to the pliocene and pleistocene periods. Other remains are also found of a much larger animal of the B. kind, which must have existed in Europe and Asia with the present species, but which seems to have become extinct before the historic period. They were different, however, not merely in size, but in other particulars so important, that Owen has constituted for

BEAVER—BEAVER DAM.

the 'great B.' a distinct genus, *Trogontherium*.

Still more remarkable instincts of the B. such as making canals to float heavy sticks, and supplementary dams for water-supply, are given by Lewis H. Morgan, in his famous book, *The American Beaver*.

BEAVER ISLANDS: group of islands in Lake Michigan, to the west of the Straits of Mackinaw; they constitute Manitou co., Mich. The principal island was settled by a band of Mormons 1846, but they did not remain. The chief town and the county seat is St. James.

BEAVER, JAMES ADDAMS: lawyer: b. Millerstown, Perry co., Penn., 1837, Oct. 21. In 1846 his family removed to Belleville, Mifflin co., where he went to school for several years, and in 1854 entered Jefferson College, Cannonsburg, Penn. Here he graduated 1856, read law, and by the time he was of age was a partner in a law firm in active practice at Bellefonte, Penn. In 1861 he was second lieut. of a local volunteer organization which joined the Union army, and was afterward lieut.col. of the 45th Penn. vols., and in 1862 col. of the 148th Penn. vols. He was wounded at the battle of Chancellorsville, was afterward on recruiting service, and then led his regt. through the Wilderness campaign 1864, May, and was in command of his brigade at the battle of Cold Harbor. He was wounded in the assault on the works at Petersburg, and again at the battle of Ream's Station, where his right leg was shattered by a rifle-ball, rendering amputation necessary. He was brevetted brig.gen. 1864, Nov. 10, and mustered out Dec. 22. After the close of the war, he applied himself to his law practice. In 1873 he was elected a member of the board of trustees of the Penn. State Univ. He became popular as a republican campaign-speaker, and in 1886 was elected gov. of Penn., though defeated 1882. In 1888 and 1895 he was vice-moderator of the Presbyterian General Assembly, and in 1898 a member of the President's commission on investigation of the War Department.

BEAVER DAM: city of Dodge co., Wis.; on B. D. creek and lake, 63 m. w.n.w. of Milwaukee; on the Chicago Milwaukee and St. Paul r.r. It has a handsome city hall, a high school and other schools, 14 churches, a national bank, 3 hotels, 2 weekly newspapers. Its industrial and manufacturing establishments are an iron foundry, 2 woolen-mills, cotton-mill, tannery, grist-mill, planing-mill, sash and blind factory, 2 breweries. Pop. (1890) 4,222; 5,128.

BEAVER FALLS—BECAUSE.

BEAVER FALLS: town in Beaver co., Penn.; on the w. bank of Beaver river and on the Pittsburgh Fort Wayne and Chicago and the Pittsburgh and Lake Erie railroads; 20 m. s. of Newcastle, 34 m. n.w. of Pittsburgh. It is in a rich coal and natural-gas region, has railroad connection with important points n. and s., and is noted for its varied and extensive manufactures. The river furnishes motive-power for all its factories; and natural gas, used in the furnaces, is obtained from three wells. There were (1890) 8 churches, 1 national bank (cap. \$50,000), 2 private banks, 2 daily, 2 weekly, and 2 monthly publications. The industries comprise flour-mills, planing-mills, steel-works, brick-yards, glass-works, and manufactories of bicycles, cold-rolled shafting, stoves, wire nails, axes, files, shovels, door mats, and a variety of hardware. B. F. is the seat of Geneva Coll. (Ref. Pres.). Pop. (1890) 9,734; (1900) 10,054.

BEAVER INDIANS: tribe or band of Amer. aborigines, belonging to the Ojibway stock, and settled on the Peace river in British Columbia.

BEAVER-RAT: another name for the Musk-rat or Musquash (q.v.): see also **HYDROMYS**.

BEAVERTAIL: southern extremity of Canonicut Island, Narragansett Bay; on it is a light-house.

BEAVERTEEN: n. [from *beaver*, the animal]: a cotton twilled cloth in which the warp is drawn up into loops, forming a pile, thus distinguishing the fabric from velvet, in which the pile is cut; a kind of fustian made of coarse twilled cotton, shorn after it has been dyed. If shorn before being dyed it is called *mole-skin*.

BEAVER-TOOTH: the enamelled tooth of the beaver, once used by the North American Indians as a cutting instrument.

BEAVER WOOD—BEAVER TREE: see **MAGNOLIA**.

BEBEERINE, n. *běb-ě'rĭn*: one of the alkaloids; obtained from the Greenheart bark or *bebeeru* (or *bebeerina*), of Demerara. It is used in medicine in place of quinine, which it resembles in properties, though it is not so powerful in its action as a tonic and febrifuge. The condition in which it is generally sent into market is as the sulphate of B., occurring in shining scales of a pretty brown color, soluble in water.

BEBEE'RU, or **BEBEERINA**, or **BEEBEE'RU**, or **BIBI'RI**: see **GREENHEART**.

BEBLUBBER, v. *be-blŭb'ěr* [*be*, and *blubber*]: to cause to blubber; to make to swell with weeping. **BEBLUB'BERED**, pp.

BECALM, v. *bě-kām'* [*be*, and *calm*]: to still; to make quiet. **BECALM'ING**, imp. **BECALMED**, pp. *bě-kāmd*: **ADJ.** applied to a ship that lies still for want of wind.

BECAME, v. *bě-kām'*: see under **BECOME**.

BECAUSE, conj. *bě kawz'* [*be*, for, and *cause*; also *by*, and *cause*]: for this cause that; on this account that; a word indicating the drawing of a conclusion from some-

thing before affirmed; an *illative* particle, so named at marking an inference.—SYN.: consequently; accordingly, therefore; wherefore; then; hence; thence; since; for; as; inasmuch as.

BECCABUNG'A: see BROOKLIME.

BECCAFICO, n. *běk'ă-fě'kō* [It. *beccafico*, a fig-pecker—from *beccare*, to peck; *fico*, a fig], (*Sylvia hortensis*, or *Curruca hortensis*): little bird of the family of the *Sylviadæ*, or Warblers (q.v.), sometimes called the Pettychaps, and sometimes the Garden Warbler, rather rare in Britain, but abundant in more southern parts of Europe, and in great demand for the table in Italy, its flesh being regarded as of peculiar delicacy. It feeds on figs and grapes. It is a mere summer bird of passage in Europe. The upper parts are mostly of a brown color, the lower parts whitish. It is a bird of very pleasing song. The name is sometimes extended to other birds of the same family used for the table.

BECCAMOSCHINO, *běk'ă-mōs-kě'no* (*Sylvia cisti'cola*): little bird of the family of the Warblers, found in Italy; remarkable for its nest, which resembles that of the tailor-birds, being usually placed in a bush of lengthened herbage, the leaves and stalks drawn together over it, and a flooring formed for it by leaves curved across below, and sewed together generally with some kind of vegetable fibres.

BECCARIA, *běk'ă-rě'a*, CESARE BONESANA: 1735 (or 8)—1794, Nov.; b. Milan. The opinions of the French encyclopedists, especially those of Montesquieu, had the greatest influence in the formation of his principles and sentiments. His most popular work is his *Trattato dei Delitti e delle Pene* (Treatise on Crimes and Punishments), published 1764, in which he argues against the severities and abuses of criminal law, especially capital punishment and torture. The work was extremely popular, and was translated into several European languages. It is marked by eloquence, sensibility, and lively power of imagination. Kant unfairly accuses the author of an affected humanity, though it must be admitted that the German philosopher has exposed the invalidity of some of the arguments brought forward. On the whole, however, the work of B. is acknowledged to have done great good, and the subsequent reforms in the penal code of European nations have generally taken the direction which he pointed out. He was among the first to advocate the beneficial influence of education in lessening crime. His new views were strongly supported by Count Firmian, the Austrian governor of Lombardy, a man of liberal and enlightened sentiments. In 1768, B. was appointed prof. of political philosophy at Milan.

BEC-FIN, *běk fang'*: common Fr. name for different species of birds of the family of *Sylviadæ*, or Warblers (q.v.). The name is sometimes met with in English books.

BECHANCE, v. *bě-chāns'* [*be*, and *chance*]: in *OE.*, to befall; to happen.

BECHE—BECHILITE.

BECHE, n. *bāsh* [F. *bêche*, a spade; *bêcher*, to dig, pierce, or turn up with a spade]: in *well-boring*, an instrument for seizing and recovering a rod used in boring when it has become broken in the process.

BÊCHE-DE-MER, *bāsh-de-mür'*, or **TREPANG**: an article of luxury among the Chinese, consisting of the dried bodies of several species of *Holothuria* (q.v.), or Sea-cucumber, which are found in great abundance in the shallow waters of lagoons, and on reefs, from the s. e. coast of Asia to New Holland. The traffic in B. is very extensive, and the Malays catch the animals, and prepare them in large quantities for the Chinese market. They are usually about 8 or 9 inches long, but some are 2 ft. in length, and 7 or 8 inches in girth. They are often found nearly buried in the coral sand, their feathered tentacula alone floating above it. The larger ones are sometimes speared in shallow water; but most of them are taken by divers in depths of from 3 to 5 fathoms. An expert diver will bring up eight or ten at a time. They are split down one side, boiled, pressed flat with stones, dried in the sun, and afterwards in smoke, and packed in bags, in which state they are bought by the Chinese, and conveyed in junks to China. Fleets of Malay proas are employed in the search for this curious production of the sea. Macassar is the great staple-place of the trade, and from it above 8,000 cwt. of B. are annually sent to China, the price varying, according to the kind and quality, from abt. eight to fifty dollars per cwt. There is a considerable export of B. from Manilla also. B. is extremely gelatinous, and is much used by the Chinese as an ingredient in rich soups.

BECHER, *běk'ér*, **JOHANN JOACHIM**: 1635–82; b. Speier: author of the first theory of chemistry. He gained an extensive knowledge of medicine, physics, chemistry, and politics, and in 1660 was made a member of the imperial council at Vienna. He removed to Mainz, and thence to Munich, Würzburg, Haarlem, and finally London, where he died. He had many enemies, and was accused—not altogether unjustly—of charlatanry; nevertheless, he rendered important services to chemistry. His *Physica Subterranea* was the first attempt to bring physics and chemistry into close relation; in these two he sought the causes of all the inorganic phenomena in the world. He at the same time began to construct a theory of chemistry, and also investigated the process of combustion. B. taught that every metal was composed of an earthy substance common to all metals; of a combustible principle also identical in all; and was differentiated from other metals only by the possession of a peculiar mercurial element; when a metal was heated, until it had changed its form, the mercurial substance was discharged, and nothing remained except metallic calx. Herein lies the first germ of Stahl's phlogistic theory, which obtained universal currency until the time of Lavoisier.

BECHILITE, n. *běch'i-lit* [from *Bechi*, an Italian mineralogist]: a mineral classed by Dana with the Borates. It consists of boric acid, 51.13; lime, 20.85; water, 26.25;

BECHUANAS—BECK.

with 1.75 of silica, alumina, and magnesia. It was found by Bechi as an incrustation at the baths of the boric acid lagoons of Tuscany, being formed probably by the action of hot vapor on lime. The South American mineral Hayesite may be the same species.

BECHUANAS: see BETJUANS.

BECK, n. *bēk* [AS. *beacen*, a sign: Icel. *bakna*, to nod: Gael. *beic*, a movement of courtesy; a contraction of BECKON]: a nod of the head meant to invite attention; in *OE.*, a weight of 16 lb. or a measure of 2 gals.: V. to make a sign with the head; to call by a nod. BECKING, imp. BECKED, pp. *bēkt*.

BECK, n. *bēk* [AS. *becc*: Ger. *bach*: Icel. *beckr*]: a little stream; a brook.

BECK, JAMES BURNIE: statesman: 1822, Feb. 13—1890, May 3; b. Dumfriesshire, Scotland. He emigrated to America while young, and having had a general education at home, studied law at the Transylvania Univ., where he graduated 1846, beginning practice at Lexington, Ky. He became eminent as a lawyer; and was elected 1866 as a democrat to the house of representatives, being re-elected until 1874, when he declined to serve longer. He was elected U. S. senator 1877, and by re-election served until his death. He was a rapid and brilliant speaker, a conscientious worker, and noted as an earnest and consistent opponent of high tariff. He served on the most important committees in both houses.

BECK, LEWIS CALEB: author: 1798, Oct. 4—1853, Apr. 20; b. Schenectady, N. Y.; bro. of T. Romeyn B. and John B. B. He graduated at Union Coll. 1817, applied himself to medicine, and practiced in Schenectady and St. Louis. He became prof. of botany in the Rensselaer Polytechnic Institute (1824-29), and held the same chair in the Vermont Acad. of Medicine (1826-32), Rutgers Coll. (1830-53), and Albany Med. Coll. (1841-53). He published important works on scientific and other subjects.

BECK, PAUL: philanthropist: 1760-1844, Dec. 22; b. Philadelphia; son of a German who came to America 8 years before Paul was born. B. was engaged in importing wine and accumulated large wealth, much of which he applied to charitable uses. He contributed to, or aided to found, the Philadelphia Acad. of Fine Arts, deaf and dumb institution, and American Sunday School Union.

BECK, THEODORIC ROMEYN, M.D.: 1791, Apr. 11.—1855, Nov. 19; b. Schenectady, N. Y. He graduated at Union Coll. 1807, studied medicine, and began practice in Albany 1811. He held the chair of med. jurisprudence in the Coll. of Physicians and Surgeons, Fairfield, N. Y.; and was principal of the Albany Acad. 1817-48, being also prof. of materia medica in Albany Med. Coll., 1840-54. He was pres. of the State Med. Soc. 1829. and of the board of managers of the state lunatic asylum 1854; and, associated with his bro. John B. B., was author of *Elements of Medical Jurisprudence*, which became an accepted authority.—His bro. JOHN BRODHEAD B., M.D. (1794, Sep. 18.—1851, Apr. 9; b. Schenectady, N. Y.), graduated at

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Columbia Coll., New York, 1813; was prof. of materia medica, botany, and med. jurisprudence in the N. Y. Coll. of Physicians and Surgeons, and wrote several important medical works.

BECKER, n. *běk'ěr* (*Pagrus vulgaris*): a fish of the family *Sparidae*; often called Porgy, or Scup, or Braize.

BECKER, GEORGE FERDINAND, PH.D.: geologist: 1847, Jan. 5. —————; b. New York. After graduating at Harvard 1868, he went to Heidelberg and took his degree PH. D., and thence to Berlin, where he graduated from the Royal School of Mines. Returning to America, he taught mining and metallurgy in the Univ. of California 1875–79, in the latter year taking charge of the Cal. division of the U. S. Geol. Survey. He was special agent of the U. S. census 1880, special agent to investigate precious metal industries 1882, and geologist with the army in the Philippines 1898–9.

BECKER, *běk'ěr*, GOTTFRIED WILHELM: 1778–1854, Jan. 17; b. Leipsic: German author. He entered the univ. and settled in Leipsic as a practicing physician and a writer of medical works, several of which reached many editions. The wars of the period turned his attention to history and modern languages, and in 1833 B. entirely relinquished practicing medicine, and became a fertile and admired contributor to many of the more popular branches of literature. Among many attractive vols. of travels in his own country are *Tour to the Harz*, *Sketches of Southern Germany*, etc. His historical writings, which are not less numerous, narrate chiefly the events of his own time. Among them are *Andreas Hofer*, *Egypt as it Now Is*, *The Fate of Spain in Modern Times*, etc. All his works have been published at Leipsic.

BECK'ER, JOHN PHILIP: a German radical politician; b. 1809, March 19, at Frankenthal, in the Palatinate on the Rhine; d. at Geneva, 1886, Dec. 9. He was brought up as a brushmaker. The French revolution of 1830, July, gave him a political bias, and he took part in the political agitations of the day, in consequence of which he was imprisoned; but in 1833 he was released. In 1837, he settled in Switzerland, taking a part in several radical publications, and organizing, 1838, 1845, volunteer corps. In the autumn of 1847, he was summoned to the military bureau at Berne, and being chosen adjutant of Ochsenbein's division, fought against the Sonderbund with acknowledged bravery. Upon the failure of Hecker's attempt to revolutionize Baden, 1848, B., who had organized troops for his support, returned to Switzerland, to plan an expedition of German and Swiss auxiliaries, to support the cause of freedom in Rome and Sicily. Their movements being frustrated, he led his troops in the summer of 1849 into the Palatinate and the Duchy of Baden, where a rising had taken place, and was prominent in many engagements. Subsequently, he settled in Geneva, and engaged successfully in commerce. A history of the revolution of 1849, in southern Germany, was published by him and Esselen. In his later years B. was a leader of the socialist party and an active

agitator on behalf of the association known as the 'International.'

BECK'ER, KARL FERDINAND: 1775-1849; b. Liser, in the old electorate of Treves: German philologist. At first a teacher, he ultimately settled as a medical practitioner at Offenbach. Here he educated his own children with such success that several families induced him to take charge of theirs, and thus his house was converted into an academy (1823), which he conducted till his death. This gave scope to his early predilection for linguistic studies, to which his scientific training led him to give a quite new direction. B. contemplates language as an *organism*, pervaded by strict logical laws. From this point of view, he wrote his *Deutsche Grammatik* (2d ed., 1870). He neglects too much the historical development of language, and thus, as might be expected, comes at times into conflict with the results of comparative philology; yet his work is valuable for its logical consequence, and for its leading idea of organism in language. Besides a *Schulgrammatik* (10th ed., 1872), an outline of his larger work, he published several other treatises on the German language.

BECK'ER, KARL FERDINAND: 1804-77, Oct.; b. Leipsic. He may be named with Kiesewetter and Winterfeld, as one of the best German writers on the history of music, and also as an excellent composer for the organ, as is proved by his trios and other compositions. Among his works are: a *Choral-book*, or collection of psalm and hymn tunes (Leipsic, 1844); *Choral Melodies* for Spitta's Psalter and Harp, 1841; a *Catalogue* of his musical library, one of the most extensive in Germany; *On the Choral Collections of Various Christian Churches*, 1841; *The Choral Compositions of the 16th and 17th Centuries*, 1847; and *The Composers of the 19th Century*, 1849.

BECK'ER, WILHELM ADOLF: 1796-1846, Sept. 30; b. Dresden, d. Meissen: distinguished German author. In 1816, he came to Leipsic, where he studied theology, and more particularly philology. In 1840, he travelled through Italy; in 1842, was appointed prof. of archæology at the Univ. of Leipsic. His lively fancy, aided by a thorough knowledge of the classic languages, enabled him to make a novel use of antiquity. In his *Charicles* (Leip. 1840), he ventured to reproduce the social life of old Greece; and in his *Gallus* (Leip., 1838), to give sketches of the Augustan age at Rome. The learning which he has contrived to stuff into his picturesque sentences is marvellous, not to speak of the quantity buried in his *excursus*, or disquisitions, which, in the English translation of the works by Metcalfe, are transferred from the text to the end of the volumes. Lockhart's *Valerius* is the only thing in English literature which corresponds to these compositions of the German author. B.'s treatise, *De Comicis Romanorum Fabulis* (Leip., 1837), is a valuable contribution to the history of Roman dramatic poetry. His most important work, in a scholastic point of view, is his *Hand-book of Roman An-*

tiquities (1843-1846), which, after his death, was continued by Marquardt.

BECKERATH, *bek'kèh-rât*, HERMANN VON: 1801, Dec. —1870, May; b. and d. Krefeld, Prussia: one of the remarkable public characters of Germany. He sprang from a commercial family, and was a successful banker; but he interested himself also in jurisprudence and politics. The accession of Frederick-William IV. to the throne roused B. to a sense of the political condition of his country, and he devoted himself to work out its constitutional freedom. In 1843, he was elected representative of his native town in the provincial diet, and continued for several years to take a prominent part in Prussian politics. He was a deputy in the national assembly which sprang up in the eventful year 1848, and held its sittings at Frankfort. His eloquence exercised considerable influence on this assembly. He was appointed minister of finance, and shortly after called to Berlin, to construct a cabinet; but in this he failed. His strictly constitutional advice was not apparently agreeable to the court, and he returned to Frankfort. An advocate for German unity, it was he who made use of the expression: 'This waiting for Austria is death to the union of Germany.' But he refused to assent to any revolutionary measure. When the retrograde movement set in, he resigned the posts he held under government, but continued, as a member of the second Prussian chamber, a vigorous opposition to the Manteuffel ministry, which had deserted the cause of German unity. He withdrew from the arena of political strife in 1852.

BECKET, *n. bék'èt*: among *seamen*, a piece of rope placed to confine another rope or a spar; a small circle or hoop of rope, or a wooden bracket, used as a handle.

BECKET, THOMAS À, Archbishop of Canterbury: 1119-70, Dec. 29; b. London: son of a merchant. The romantic story which makes his mother a Saracen is doubtful. He studied theology at Oxford and Paris, afterwards law at Bologna, and at Auxerre, in Burgundy. Having been recommended to Henry II. by Theobald, Abp. of Canterbury, who had had experience of his abilities, B. was promoted to the office of high chancellor, and thus (according to Thierry) resuscitated the hopes of the English as the first native Englishman, since the Conquest, who had filled any high office. His duties as high chancellor were numerous and burdensome, but he discharged them vigorously. He was magnificently liberal in his hospitality. Henry himself did not live in a more sumptuous manner. As yet, B. seems to have regarded himself as a mere layman, though in fact he was a deacon; but in 1162, when he was created Abp. of Canterbury (an office which, as it then involved the abbacy of the cathedral monastery, had never but twice before been held by any but a monk or canon-regular), a remarkable change became manifest in his whole deportment. He resigned the chancellorship, threw aside suddenly his luxurious and courtly habits, assumed an austere religious character, exhibited his liber-

ality only in his 'charities,' and soon appeared as a zealous champion of the church against all aggressions by the king and the nobility. Several noblemen and laymen were excommunicated for their alienation of church property. Henry II., who, like all the Norman kings, endeavored to keep the clergy in subordination to the state, convoked the nobility with the clergy to a council, 1164, at Clarendon (near Salisbury), where the so-called 'constitutions' (or laws relative to the respective powers of church and state) were adopted. To these, the primate, at first, declared he would never consent; but afterwards, through the efforts of the nobles, some of the bishops, and, finally, of the pope himself, he was induced to give his unwilling approbation. Henry now began to perceive that B.'s notions and his were utterly antagonistic, and clearly exhibited his hostility to the prelate, whereupon B. tried to leave the country. For this offense the king charged B. with breach of allegiance, in a parliament summoned at Northampton, 1164, confiscated his goods, and sequestered the revenues of his see. A claim was also made on him for not less than 44,000 marks, as the balance due by him to the crown when he ceased to be chancellor. B. appealed to the pope, and next day, leaving Northampton in disguise, fled to France, where he spent two years in retirement at Pontigny, in Burgundy. The French monarch and the pope, however, now took up his cause. B. went to Rome, pleaded personally before his holiness, who reinstated him in the see of Canterbury. B. now returned to France, whence he wrote angry letters to the English bishops, threatening them with excommunication. Several futile efforts were made to reconcile Henry and B.; but at length, 1170, a formal agreement was come to at Fretville, on the borders of Touraine. The result was, that B. returned to England, entering Canterbury amid the rejoicings of the people, who were unquestionably proud of B., and regarded him—whether wisely or not—as a shield from the oppressions of the nobility; but he soon manifested all his former boldness of opposition to royal authority. At last, it is said, the king, while in Normandy, expressed impatience that none of his followers would rid him of an insolent priest. The fatal suggestion was immediately understood, and carried into effect by four barons, who departed by separate ways for England. On the evening of 1170, Dec. 29, they entered the cathedral, and having failed in an attempt to drag him out of the church, there slew B. before the altar of St. Benedict, in the north transept. Henry was compelled to make heavy concessions to avoid the ban of excommunication. The murderers, having repaired to Rome as penitents, were sent on a pilgrimage to Palestine; and, two years after his death, B. was canonized by Pope Alexander III., and the anniversary of his death was set apart as the yearly festival of St. Thomas of Canterbury. In 1220, his bones were raised from the grave in the crypt where they had been hastily buried two days after his murder, and were by order of King Henry III. deposited in a splendid

shrine, which for three centuries continued to be the object of one of the great pilgrimages of Christendom, and still lives in English literature in connection with Chaucer's *Canterbury Tales*. At the Reformation, Henry VIII. despoiled the shrine, erased B. name from the calendar, and caused his bones to be burnt and scattered to the winds. It is extremely difficult to estimate properly the character of Becket. We do not know what his ultimate aims were, whether, as some suppose, they were patriotic, i.e., *Saxon*, as opposed to *Norman*, or, as others believe, purely sacerdotal. At all events, the means he used for the attainment of them was a despotic and irresponsible ecclesiasticism. He admitted nothing done by churchmen to be secular, or within the jurisdiction of civil courts, not even murder or larceny. Fortunately, the Plantagenets were as dogged believers in their own powers and privileges as B. in those of the church; and by their obstinate good sense, England was kept wholesomely jealous of the pretensions of Rome. See Dr. Giles's *Vita et Epistolæ S. Thomæ Cantuariensis*; Canon Morris's *Life of St. Thomas Becket*; Canon Robertson's *Life of Becket*; Dean Stanley's *Historical Memorials of Canterbury*; Freeman's *Historical Essays*; Hook's *Lives of the Archbishops of Canterbury*; Froude's articles on B. in the *Nineteenth Century*.

BECKFORD, *bēkfōrd*. WILLIAM: 1760–1844, May 2; born at Fonthill, Wilkshire, England. When he was about nine years of age, his father died, and he inherited the larger portion of an enormous property, consisting for the main part of estates in Jamaica, and of the estate of Fonthill, in Wiltshire. His annual revenue is said to have exceeded £100,000. Young B. evinced unusual intellectual precocity; for in 1780 he printed a satirical essay, entitled *Biographical Memoirs of Extraordinary Painters*, in which he does not spare living artists, and assails the cant of criticism with the polished weapon of his wit. In 1778, he met Voltaire at Paris. Two years thereafter, he started on his first great continental tour, and spent twelve months in rambling through Flanders, Germany, and Italy. In 1782 he made a second visit to Italy, and in 1787 he wandered through Portugal and Spain. In 1783, he married the Lady Margaret Gordon, daughter of Charles, fourth earl of Aboyne; and in the following year he entered parliament as one of the members for Wells. In the same year he published *Vathek* in French. B. informs us that he wrote this tale, as it now stands, at twenty-two years of age, and that it was composed at one sitting. 'It took me,' he says, 'three days and two nights of hard labor. I never took off my clothes the whole time. This severe application made me very ill.' Immediately on its publication, *Vathek* was translated into English; B. professes never to have known the translator, but thought his work well done. In 1790 he sat in parliament for Hindon; in 1794 he accepted the Chiltern Hundreds, and again left England. He fixed his residence in Portugal, purchased an estate near Cintra, and occupied for a time that 'paradise' which Byron commemorated in *Childe*

BECKITE—BECKMANN.

Harold. Tormented by unrest, he returned to England; and in 1801 the splendid furniture of Fonthill was sold by auction, and the next year his valuable collection of pictures was disposed of in London. These dispersions were no sooner made than he began a new collection of books, pictures, furniture, curiosities, and proceeded to erect a new building at Fonthill, the most prominent feature of which was a tower above 260 ft. high. B. resided at Fonthill till 1822, when, in one of those strange vagaries of feeling of which his life was so full, he sold the estate and house, with all its rare and far-gathered contents, to Colonel Farquhar for £350,000. Soon afterwards, the great tower, which had been raised on an insecure foundation, came to the ground. On the sale of Fonthill, B. removed to Bath, and immediately proceeded to erect another lofty building, the plan of which also included a tower, but this time not more than 100 ft. high. While residing there, he did not mingle in Bath society, and the most improbable stories concerning the rich and morose genius in their neighborhood were circulated among the citizens. During all his life B. was a hard-working student, and was devoured by a passion for books. Some of his purchases were imperial in their way. He bought Gibbon's library at Lausanne, to amuse himself when he happened to be in that neighborhood. He went there; read in the fierce way that he wrote, three days and two nights at a sitting; grew weary of his purchase; and handed it over to his physician, Dr. Scholl. Up till 1834 he had published nothing since *Vathek*, but in that year the literary silence of half a century was broken by the appearance of a series of letters, entitled *Italy, with Sketches of Spain and Portugal*, in two vols. In the same year he republished his *Memoirs of Extraordinary Painters*; and in 1835 he issued another volume, entitled *Recollections of an Excursion to the Monasteries of Alcobaca and Batalha*, made 1794, June. After this last publication till his death, he lived in the deepest retirement.

B. since the publication of his Arabian tale, has been a power in English literature. His wit, his sarcasm, his power of graphic description, may be seen in his journal and letters; and his higher faculties of imaginative conception and delineation reign in the unmatched passages that shadow forth in gloom and glory the 'Hall of Eblis.'

BECKITE, n. *bēk'īt* [named after *Dr. Beeke*, Dean of Bristol, by whom it was first discovered]: a mineral, a variety of pseudomorphous quartz. It consists of altered coral in which a portion of the original carbonate of lime may yet be detected, though most of it has been replaced by chalcedony. It occurs in Devonshire, Eng.

BECKMANN, *bēk'mân*, JOHANN: 1739, June 4—1811, Feb. 4; b. Hoya, Hanover; d. Göttingen. German author, on natural history and agriculture. He was for about two years professor of physics and natural history in St. Petersburg; afterwards he received instructions from Linnæus. In 1766, he was appointed prof. of philosophy,

BECKON—BECQUEREL.

and in 1770, ordinary prof. of political economy at Göttingen. He was the first German author who wrote on agriculture in a scientific style. Among his works are: *Principles of German Agriculture* (6th ed. 1806), *Introduction to Technology* (5th ed. 1809).

BECKON, *v.* *běk'n* [from BECK 1]: to make a sign to another by nodding, or by a motion of the hand or finger. BECKONING, *imp.* *běk'ning*. BECKONED, *pp.* *běk'nd*.

BECLOUD, *v.* *bě-k'loud'* [*be*, and *cloud*]: to obscure; to dim. BECLOUD'ING, *imp.* BECLOUD'ED, *pp.*

BECKWITH, *běk'wĭth*, JOHN WATRUS, S.T.D.: bishop of the Prot. Episc. Chh.: 1831, Feb. 9—1890, Nov. 23; b. Raleigh, N. C. He graduated at Trinity Coll. Hartford 1852, was ordained deacon 1854, priest 1855. He settled in Md., but at the outbreak of the civil war, removed to Miss. and thence to Ala. He became rector of Trinity Church, New Orleans, at the close of the war, and while in that pastorate was elected bp. of Ga. In 1868 he was consecrated bp. at St. John's Church, Savannah, Ga. B. gained the reputation of having no superior in the Prot. Episc. Chh. for pulpit eloquence and power; and the notable growth of that church in Ga. has been attributed to him.

BECOME, *v.* *bě-kŭm'* [AS. *becuman*, to attain to, to befall, to suit: O. H. G. *piquēman*; M. H. G. *bekomen*, to happen, to befall; hence Ger. *bequem*, fit, proper, convenient]: to pass from one state to another; to befit; to sit gracefully. BECOM'ING, *imp.*: ADJ. appropriate; graceful. BECAME', *pt.* BECOM'INGLY, *ad.* *-lĭ*, after a becoming or suitable manner. BECOM'INGNESS, *n.* the state or quality of being becoming or suitable; congruity.—*SYN.* of 'becoming': decent; proper; fit; seemly; suitable; just; right; appropriate; congruous; graceful; befitting.

BECQUEREL, ALEXANDRE EDMOND: 1820, March 20—1891, May 12; b. Paris, son of Antoine César. He received the cross of the Legion of Honor 1851: and was appointed prof. of physics in the *Conservatoire des Arts et Métiers* 1853. He is a member of the *Académie des Sciences*. To his joint labors with his father are due interesting researches concerning the solar spectrum and the elements of electric light (*Comptes Rendues de l'Académie*, 1839-40); *Éléments de Physique Terrestre et de Météorologie* (1847); *Mémoires sur les Lois qui président à la Décomposition électro-chimique des Corps* (1849); and a *Note sur le tracé des Lignes Isothermes en France; des Recherches sur les Effets Électriques* (1852 and 1855); and *Les Forces physico-chimiques*.

BECQUEREL, *běk-rě'l'*, ANTOINE CÉSAR: 1788, March 8—1878, Jan. 19; b. Chatillon-sur-Loing, dept. of Loiret: French physicist. In 1808, he entered the French army as an officer of engineers, and served with distinction, and at the peace of 1815, retired from the service, to pursue scientific studies. In 1819, he published a volume of geological and mineralogical researches, after which his attention was given to electricity and magnetism. While studying the physical properties of yellow amber, B. had occasion to make experiments on the liberation of electricity by

BECQUET—BECSKEREK NAGY.

pressure. This led him to investigate the laws by which the phenomena of liberation are governed in chemical action. The result of his inquiries was the overthrow of Volta's theory of contact, and the construction, by him, of the first constant pile. He next discovered a method of determining the internal temperature of human and animal bodies, and by physiological applications demonstrated that, when a muscle contracts, there is a development of heat. B. is one of the creators of electro-chemistry. His labors in this branch of science opened for him, 1829, the door of the *Académie de Sciences*. Since 1828, he had begun to apply electro-chemistry in the reproduction of mineral substances, and in the treatment by the humid way of silver, lead, and copper ores. In 1837, he was elected a member of the Royal Soc. of London. Among his works were the *Traité de l'Électricité et du Magnétisme*; *Traité de Electrochimie*; *Traité de Physique*; *Éléments de Physique terrestre et de Météorologie*.

BECQUET, *bā-kā'*, ANTOINE: 1654–1730; b. Paris: biographer. He joined the order of monks called Celestines, became librarian of his convent, and became famous for extensive knowledge. His principal work is: *Gallicæ Celestinorum congregationis, ordinis S.-Benedicti, monasteriorum foundationes, virorumque vita aut scriptis illustrium elogia historica*, etc. (Paris, 1719, quarto).

BECRI-MUSTAFA, *bēk'rē-mūs'ta-fa*: 17th c.: a favorite of the sultan Amurath IV., who found him drunk on the streets, brought him home, and made him his companion both in his debauchery and in his government. He became, nevertheless, one of the best counselors of the celebrated and warlike sultan, as well as a brave and bold commander. He distinguished himself especially at the sieges of Erivan and of Bagdad (1638), and died a short time before his master, who caused him to be buried with great pomp between two tuns, and became himself a mourner.

BECSE, *bēt'shé*, NEW: market-town of Austria, about four m. e. from Old Becse. Pop. 6,472.

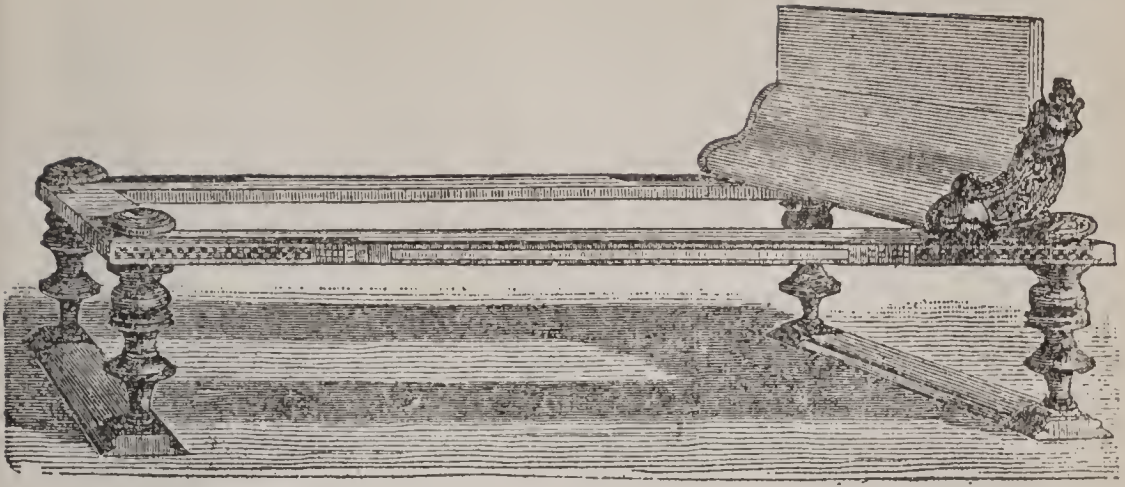
BECSE, OLD: market-town of the Austrian empire, in the Servian Woiwodschaft, 24 m. n.n.e. from Neusatz. Pop. (1880) 15,040; (1890) 16,754.

BECSKEREK NAGY, *bātsh-kā-rēk' nōdj*, or GREAT BECSKEREK: important market-town of Hungary, co. of Torontal, on the left bank of the Bega, about 45 m. s.w. of Temesvar, with which place it is connected by canal. Pop. (1880) 19,529; (1890) 21,934.

BED.

BED, n. *běd* [Icel. *bedr*; Ger. *bett*; Goth. *badi*, a bed]: something on which to sleep; a couch; the bottom or channel of a river; a plot of ground in a garden; a layer; in *geol.*, a stratum or layer: V. to lie; to sleep; to sow; to put plants into a plot of garden ground. **BED'DING**, imp. **BED'DED**, pp. **BED'DING**, n. materials of a bed. **BED-BUG**, the *Cimex lectularius*: see **BUG**. **BED-CHAMBER**, n. *-chām'ber*, a room in which there is a bed. **BED'RID**, a. or **BEDRID'DEN**, a. [AS. *bedrida*, one who rides on his bed]: wholly confined to bed by age or sickness. **BED'CLOTHES**, n. plu. the blankets, sheets, etc., of a bed. **BED'FELLOW**, n. one who lies in the same bed. **BED-HANGINGS**, curtains for a bed. **BED'POST**, n. one of the four standards that support a bed. **BED'STEAD**, n. *-stēd* [AS. *bed*, a bed; *stede*, a place, station]: the wooden or iron framework of a bed. **BED-STOCK**, a bedstead. **BEDTICK**, n. *běd'tik*, the case for holding the materials of a bed. **BED-BOLT**, a horizontal bolt passing through both brackets of a gun-carriage near the centre, and on which the forward end of the stool-bed rests. **BED-LATHE**, n. a lathe of the norinal type, in which the puppets and rest are supported upon two parallel and horizontal beams or shears. **BED-MOLDINGS**, or **BED-MOULDINGS**, n. moldings of a cornice in Grecian and Roman architecture immediately below the corona; called also **BED-MOLD** and **BEDDING MOLDINGS**. **BED-PLATE**, the foundation-plate of a marine or a direct action engine. **BED-RITE**, or **BED-RIGHT**, n. *běd'rit*, privilege of the marriage-bed. **BEDSTRAW**, the *Galium*, ord. *Galīacēæ*, genus of plants including some common weeds; the *G. verum*, an odoriferous wild plant, formerly strewed upon beds. **BED-WAY**, n. in *mineral.*, a certain false appearance of stratification in granite. **BEDDER**, *běd'dēr*, the nether stone in an oil-mill. **BEDDING-PLANTS**, n. plants intended to be set in beds in the open air. **BEDDING-STONE**, n. in *brick-laying*, a level marble slab on which the rubbed side of a brick is tested to prove the truth of its face. **BED OF JUSTICE** [a translation of F. *Lit de Justice*]: in *F. hist.*, the king's presence in parliament seated on his *bed* or throne in order to overawe and compel its members to register his decrees. **BROUGHT TO BED**, delivered of a child. **FROM BED AND BOARD**, a legal separation of husband and wife short of a divorce.

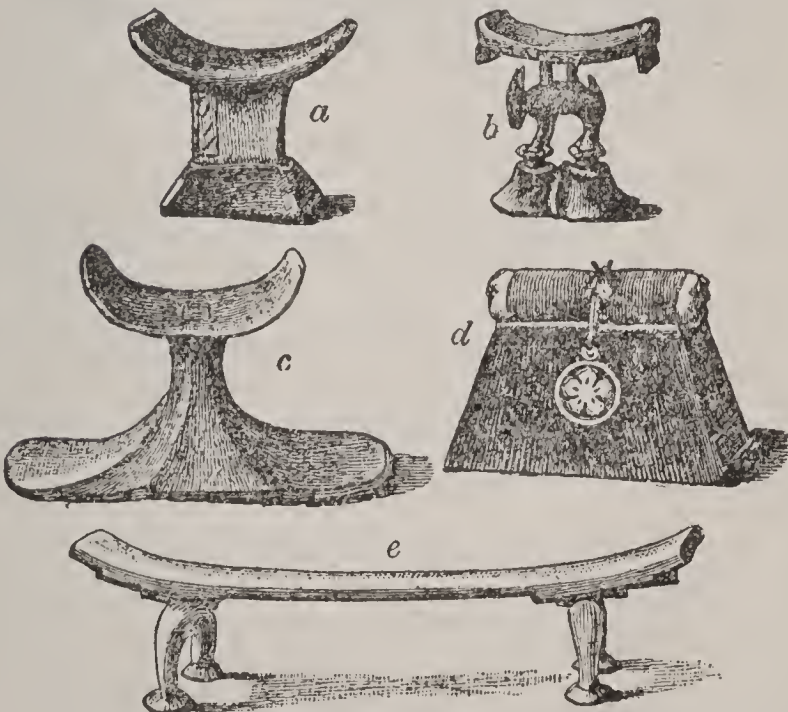
BED: an article of household furniture on which to sleep. Anciently, in Palestine, the B. seems to have been a simple kind of couch for reclining on during the day, and sleeping on at night, readily removable from place to place, as is referred to in different parts of Scripture. About the heat of the day, Ishbosheth lay on his B. at noon (2 Sam. iv. 5). In receiving visitors, the king bowed himself upon the bed (1 Kings i. 47). Jesus saith, 'Take up thy B., and go unto thine house' (Matt. ix. 6.) Yet, in these early times, beds or couches must, in some instances, have been highly ornamented: thus, 'I have decked my B. with coverings of tapestry, with carved works, with fine linen of Egypt' (Prov. vii. 16.) The ancient Greeks had an elegant kind of bed in the form of



Ancient Roman **Bed** found at Pompeii.



a, a, **Bedeguar** on the Rose.

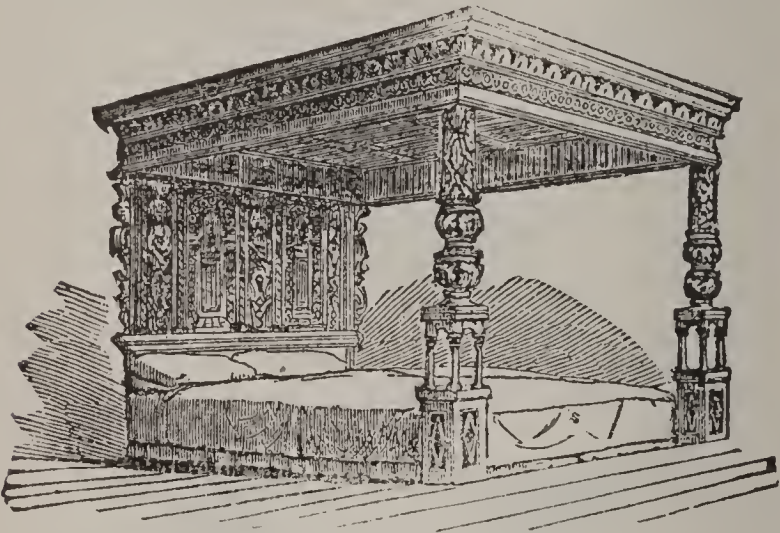


Bed.—Various forms of Pillows: *a*. Pillow used by the natives of the Zam-besi Delta; *b*, from Swaziland, Southeast Africa; *c*. Ancient wooden pillow from the Tombs of Thebes; *d*. Japanese lacquered wooden pillow with cushions; *e*, Wooden pillow from the Fiji Islands.

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open couches; they rested on a framework with posts, their mattresses were stuffed with wool or feathers; and they had coverings of a costly nature. The Romans had latterly beds of great richness and magnificence. They were of two kinds—the *lectus tricliniarius*, or couch for reclining upon at meals; and the *lectus cubicularis*, or B. placed in bed-chambers for sleeping in during the night. In eastern countries, at the present day, beds are for the most part simple couches or mattresses, which can be easily rolled up and carried away. In India, these couches are called *charpoyas*. It will be understood that, in hot climates, few bed-clothes are used—in general, only a single sheet; care is taken, however, to use mosquito-curtains, without which rest would be impracticable. See MOSQUITO.

Throughout the continent of Europe, beds are of the open couch form, suitable in width for one person. They consist of a frame or bedstead, less or more ornamental, bearing one or two hair or wool mattresses; they are often



Bed of Ware.

provided with curtains, which depend from the ceiling of the room. In French hotels, such beds, neatly done up, are seen in sitting rooms. In Germany, there is a common practice of placing large flat bags of down above the other coverings of beds, for the sake of warmth; and sometimes a bed of down altogether supplies the place of blankets. Throughout America, the beds are usually of the French, or open couch form. There are various forms of trestle or folding-beds, easily set up for use, or removed.

To prevent the falling of dust on the face, the Romans, in some instances, used canopies (*aulæa*) over their beds; in no country but England, however, has the canopied bedstead been thoroughly perfected and naturalized. The English four-posted B. or B. proper, is a gigantic piece of furniture, to which all persons aspire; and when tastefully fitted up, it offers that degree of comfort and seclusion which is characteristic of the domestic habits of the people. Like most English beds, it is made of sufficient

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size to accommodate two persons. The dimensions of a good family B. are as follows: lying part, 6 ft. 6 inches in length, 5 ft. 2 inches in breadth; height from the floor, 2 ft. 9 inches: height of the posts from the floor to the top of the cornice, 9 feet. The roof or canopy is supported by the four posts, which are of mahogany, finely turned and carved. On rods along the cornice, hang curtains, which can be drawn around the sides and foot. The head stands towards the wall, so that the B. can be approached on either side. The curtains are of silk or worsted damask; in old times, they were of tapestry. With a spring-mattress below, and a wool-mattress above the B. is complete, all but the blankets, sheets, bolster, and pillows. Ticks with feathers, laid on a hair mattress, are also common. The great B. at Ware, in Hertfordshire, is one of the curiosities of England, referred to in the *Twelfth Night* of Shakespeare: 'Although the sheet were big enough for the Bed of Ware in England.' This famous B., still seen in one of the inns at Ware, measures twelve ft. square, and is said to be capable of holding a dozen persons.

Latterly, a species of B. has been introduced into England, called the Elizabethan Bed. In point of size, it resembles the four-poster, but it has only two tall posts, with a canopy and curtains at the head, leaving more than half of the B. exposed. The tent-B., is an inferior kind of four-poster; it has a semicircular light frame roof, and light calico curtains. A more novel variety of bedsteads are those made of iron or brass, formed like open couches. The cold and humid climate of the British Islands, independently of the habits of the people, has greatly influenced the form of the B.; for although it may be more wholesome to sleep without than with curtains, it has been difficult to make the practice of doing so general, particularly during the winter and spring months. In the humbler class of rural cottages in Scotland, there still lingers the old custom of sleeping in wooden bedsteads with sliding doors. This box variety of B. is unfavorable to ventilation, but there are reasons for its use where there are damp earthen floors and imperfect ceilings.

In old times in England, beds were formed with straw instead of wool, hair, or feathers, hence the phrase of a 'lady in the straw,' signifying that she is being confined. By the humbler classes in the rural districts, straw is still used for beds, and also ticks stuffed with chaff. According to an old superstition, no person could die calmly on a B. of feathers of game-birds.

For invalids, there have been invented air-beds and water-beds. See AIR-BEDS: WATER-BED.

BED, or STRATUM: a layer of sedimentary rock of similar materials and of some thickness, cohering together so as to be quarried and lifted in single blocks. Beds are often composed of many fine laminæ or plates. The laminæ are the results of intermissions in the supply of materials, produced by such causes as the ebb and flow of the tide, river-floods, or the more or less turbid state of the water

BEDA.

under which they were deposited. When the intervals between the supply of materials were short, the numerous laminæ closely adhere, and form a bed cut off from the superior deposit, by the occurrence of a longer interval, during which the bed became consolidated more or less before the next was deposited. When the lamination is obscure, or not distinct from the stratification, it may indicate that the materials had been supplied without any intermission.

BEDA, *bē'da*, or BEDE, *bēd* (surnamed, on account of his learning, piety, and talents, VENERABLE): abt. 673-735, May 26: the greatest name in the ancient literature of Britain, and probably the most distinguished scholar of his times in the world. The place of his birth is in dispute among antiquaries, but is commonly believed to have been in what is now the parish of Monkton, near Wearmouth, Durham. In his seventh year he entered the neighboring monastery of St. Peter, at Wearmouth, where he remained 13 years, and was educated under the care of the Abbot Benedict Biscop, and his successor, Ceolfrid. His religious instructor was the monk Trumberct; his music-master, John, chief-singer (*archicantor*) in St. Peter's Church, Rome, who had been called to England by the Abbot Benedict. After these studies at Wearmouth, B. removed to the twin-monastery of St. Paul at Gyrnum (now written Jarrow), founded 682; here he took deacon's orders in his nineteenth year, and was ordained priest in his thirtieth, by John of Beverley, then Bishop of Hexham. In the shelter of his quiet and sacred retreat, while the tempest of barbaric strife raged without, and the hearts of all men in England were torn by sanguinary passions, B. now gave his life to such literature as was possible in those days, including Latin and Greek, and at least some acquaintance with Hebrew, medicine, astronomy, and prosody. He wrote homilies, lives of saints, hymns, epigrams, works on chronology and grammar, and comments on the books of the Old and New Testament. His calm and gentle spirit, the humanizing character of his pursuits, and the holiness of his life, present a striking contrast to the violence and slaughter which prevailed in the whole island. To none is the beautiful language of Scripture more applicable—'a light shining in a dark place.' When laboring under disease, and near the close of life, he engaged in a translation of St. John's Gospel into Anglo-Saxon, and dictated his version to his pupils. He was buried in the monastery of Jarrow: long afterwards (in the middle of the 11th c.), his bones were removed to Durham. His most valuable work is the *Historia Ecclesiastica Gentis Anglorum*, an ecclesiastical history of England, in five books, to which we are indebted for almost all our information on the ancient history of England down to 731. B. gained the materials for this work partly from Roman writers, but chiefly from native chronicles and biographies, records, and public documents, and oral and written communications from his contemporaries. King Alfred translated it into Anglo-Saxon. In chronology, the labors of B.

BEDABBLE—BEDCHAMBER.

were important, as he first introduced the Dionysian reckoning of dates in his work, *De Sex Aetatibus Mundi*, which served as a basis for most of the mediæval chroniclers of leading events in the world's history. Among the editions of B.'s History are: the first, at Strasburg about 1500; a much better ed., by Smith (Cambridge, 1722); one not less valuable, by Stevenson (Lond. 1838); another, by the late Dr. Hussey (Oxf. 1846); a fifth in the *Monumenta Historica Britannica* (Lond. 1848); that included by Dr. Giles in his ed. of the whole works of B. (6 vols., 1844); that at the Clarendon Press (1869); and that by Holder (Freiburg, 1882). Entire editions of B.'s writings have been published in Paris (1544-54), Basel (1563), and Cologne (1612 and 1688). English versions of his *Ecclesiastical History* were published by Stapleton, 1565; by Stevens, 1723; by Hurst, 1814; by Wilcock, 1818; and by Giles, 1840. See Gehle's *De Bedæ Venerabilis Vita et Scriptis* (Leyden, 1838); Wright's *Biographia Britannica Litteraria*, vol. i. (Lond. 1843); Surtees's *History of Durham*, vol. ii., pp. 2-6, 66-69.

BEDABBLE, v. *bě-dăb'bl* [*be*, and *dabble*]: to sprinkle with; to cover with. **BEDABBLING**, imp. *bě-dăb'ling*. **BEDABBLED**, pp. *bě-dăb'ld*.

BEDAGGLE, v. *bě-dăg'gl* [*be*, and *daggle*]: to soil the clothes by allowing them to touch the mud in walking, or by bespattering them as one moves forward. **BEDAG'GLING**, imp. **BEDAG'GLED**, pp.

BÉDARIEUX, *bā-dā-rě-eh'*: town of France, dept. Hérault; on the river Orb, well built, and second to none of its size in industry. The people are engaged in the manufacture of fine and coarse cloths, stuffs, cotton and woollen stockings, hats, paper, oil, soap, leather, etc. Pop. (1891) 7,320.

BEDAUB, v. *bě-daub'* [*be*, and *daub*]: to besmear; to sprinkle; to soil with anything thick and dirty. **BEDAUB'ING**, imp. **BEDAUBED**, pp. *bě-daubd'*.

BEDAZZLE, v. *bě-dă'z'zl* [*be*, and *dazzle*]: to confuse the sight by a too strong light; to make dim by lustre or glitter. **BEDAZ'ZLING**, imp. *-ling*. **BEDAZ'ZLED**, pp. *-zld*. **BEDAZ'ZLINGLY**, in a bedazzling manner.

BED'CHAMBER, LORDS OF THE: officers in the British royal household, twelve in number, who, in the reign of a king, wait in turn upon the sovereign's person. They are under the groom of the stole, who attends his majesty only on state occasions. There are also thirteen grooms of the B., who take their turns of attendance. The salary of the groom of the stole is £2,000; of the lords of the B., £1,000; and of the grooms, £500 a year. These offices in the reign of a queen are performed by ladies. Corresponding to the groom of the stole is the mistress of the robes, and to the grooms of the B. are B. women. Queen Victoria has usually had from ten to twelve ladies, and extra ladies of the B., and eight B. women. These offices are objects of high ambition, from the access they give to the

person of the sovereign, and are for the most part filled by 'the prime nobility of England.' They are not usually vacated on a change of ministry, and Sir Robert Peel's departure from the usual etiquette on this point, 1839, excited no small commotion.

BEDDERN, *béd'dèrn*: a refectory.

BEDDOES, LOVELL THOMAS: 1803, July 20—1849, Jan. 26; b. Rodney Place, Clifton, Eng.: eldest son of Dr. Thomas, and of Anna, third dau. of Richard Lovell Edgeworth, of Edgeworthstown, Ireland, sister of Maria Edgeworth, the novelist. He studied at the Bath grammar school; in 1817, he removed to the Charter House; and in 1820, May, he entered as a commoner at Pembroke College, Oxford. In 1821, he published the *Improvisatore*, on which he looked with no favor at a later period. In 1822, he published *The Bride's Tragedy*, which achieved for its author a great reputation. In 1824, he went to Göttingen to study medicine, and thereafter lived in Germany and Switzerland. While engaged at Frankfort (1847) in dissecting, he received a slight wound, and his health soon began to fail. In 1848, at Basel, he fell from his horse, and injured his leg; and amputation was followed by death. In Germany, B. was engaged at intervals in the composition of a drama entitled *Death's Jest-book*. This work, and his other manuscripts, chiefly poetry, he at his death confided to a friend for publication at discretion; and his poetical works, with memoir, appeared in two vols., 1851. These dramatic fragments are peculiar. The author shows no power of characterization, no ability in the conduct of a story; and, on the other hand, the crush of thought and image, the tone of music, and the depth of color, are wonderful. Mr. B. never could have become a dramatist, and of this he seems to have become aware. His works pall with splendor, and are monotonous by very richness. They are like a wilderness where nature has been allowed to pour herself forth in all her waste and tropical excess, unrestrained by a pruning hand, and unpierced by any path.

BEDDOES, *béd'dōz*, THOMAS: 1760-1809; b. Shiftnall, Shropshire. He studied at Oxford and Edinburgh, making varied attainments in botany, mineralogy, geology, chemistry, and in languages. In 1785, he published a translation of Bergman's *Essays on Elective Attractions*, with valuable original notes. In 1787, he was appointed to the chemical lectureship in the Univ. of Oxford. Here his lectures became exceedingly popular; but his unconcealed sympathies with the French revolutionary party in England appear to have rendered his post so uncomfortable that he resigned it, 1792, and retired into the country. While in retirement, he wrote his work *On the Nature of Demonstrative Evidence, with an Explanation of Certain Difficulties occurring in the Elements of Geometry*, which was intended to show that mathematical reasoning proceeds entirely on the evidence afforded by the senses, and that geometry is based on experiment. Several patriotic

pamphlets followed, and the *History of Isaac Jenkins*, in which he laid down, in a popular style, rules of sobriety, health, etc., for the benefit of the working-classes. Of this work, 40,000 copies were sold in a short time. In 1798, after having spent considerable time in studying the use of artificial or medicated gases in the cure of diseases, especially consumption, aided by his father-in-law, Mr. Edgeworth, and pecuniarily assisted by his friend, Thomas Wedgwood, he opened a pneumatic hospital at Bristol. This institution did not succeed in its main object, which was to show that all diseases being, as B. maintained, referrible to an undue proportion or deficiency of some elementary principle in the human organism, could be cured by breathing a medicated atmosphere; and B., whose zeal had abated, retired from it in 1808, about a year before his death. The only results of the enterprise were several works by B. on the application of medicated air to diseases, and the introduction to the world of Davy (afterwards Sir Humphry), who was the superintendent of the institution. Sir Humphry Davy says of B.: 'He had talents which would have exalted him to the pinnacle of philosophical eminence, if they had been applied with discretion.' A life of B. was published 1811, by Dr. Stock.

BEDE, n. *bēd*: among *miners*, a kind of pickax used for separating the ores from the rocks in which they are embedded.

BEDE, VENERABLE: see BEDA.

BEDEAU, *bě-dō'*, MARIE ALPHONSE: 1804, Aug.—1863; b. Vertou, near Nantes: French general. In the Belgian campaign of 1831-2, he was aide-de-camp to General Gérard. In 1836, he was sent to Algeria, as commandant of a battalion of the Foreign Legion. Here he acquired his great military reputation. After studying at La Flèche, and St. Cyr, he entered the army, 1825, and rose to be general of brigade.

When the revolution of February broke out, B. was commissioned to suppress the insurrection. This he found impossible, but his conduct has been severely blamed. Under the Provisional Government he was in command of the city of Paris. On the formation of the Constituent Assembly, he was named vice-pres. and always voted with the republican party. With Cavaignac, Lamoricière, and others, he was arrested, 1851, Dec. 2, and went into exile. B's religious convictions were so strong as to give rise to the groundless rumor that he had entered into holy orders in the Rom. Cath. Church.

BEDECK, v. *bě-děk'* [*be*, and *deck*]: to adorn; to grace. BEDECK'ING, imp. BEDECKED, pp. *bě-děkt'*.

BEDEGUAR, or BEDEGAR, n. *běd'ē-gâr* [Pers. *bádâward*, a kind of white thorn or thistle]: a gall (q.v.) or spongy excrescence found on rose-bushes, caused by the puncture of a small insect: it is common on the sweet-brier, upon which account it is sometimes called Sweet-brier Sponge. It is produced sometimes by *Cynips rosæ*, sometimes by

BEDEHOUSE—BEDELLUS.

other species of gall insect. It is usually of a roundish shape, often an inch or more in diameter; its nucleus is spongy and fibrous, containing numerous cells, in each of which is a small larva; externally it is shaggy, being covered with moss-like branching fibres, which are at first green, afterwards purple or red. It was formerly in some repute as a diuretic and as a remedy for stone; it has more recently been recommended as a vermifuge, and as a cure for toothache.

BEDEHOUSE, n. *bēd'hows* [AS. *bead*, a prayer]: a charity house where the poor prayed for their benefactors. **BEDESMAN**: see under **BEAD**.

BEDELL, *be-dēl'*, **GREGORY THURSTON**, D.D.: bishop of the Prot. Episc. Chh.: 1817, Aug. 17—1892, Mar. 11; b. Hudson, N. Y.; son of Gregory Townsend B., D.D. (1793–1834, b. Staten Island, N. Y.), eminent Episc. preacher and writer who established St. Andrew's Chh. in Philadelphia. Gregory Thurston B. was educated at Dr. Muhlenberg's School, Flushing, L. I., at Bristol Coll., Penn., and at the Virginia Theol. Seminary; and was ordained deacon 1840, priest 1841. In the latter year he was made rector of Trinity Church, West Chester, Penn., and two years later became rector of the Church of the Ascension, New York. In 1859, Oct. 13, he was consecrated asst. bp. of Ohio, and on the death of Bp. McIlvaine 1873 he became bp. of the diocese. Besides many sermons and addresses, Dr. B. published *The Pastor*, manual of pastoral work and duty (1880); a memorial of the elder Dr. Tyng (1866); *Centenary of the Amer. Episcopate* (London 1884).

BEDELL, *be-dēl'* **WILLIAM**: 1570—1642, Feb. 7; b. Black Notley, Essex. He was educated at Emmanuel College, Cambridge, and was a clergyman for several years at Bury St. Edmunds, whither he returned after 8 years in Venice. From 1615–27 he was rector of Horing-sheath, in Suffolk. His retired life and his Calvinistic theology had long hindered the recognition of his merits, but in 1627, he was unanimously elected provost of Trinity College, Dublin, which charge he refused till positively commanded by the king. At the end of two years, he was promoted to the united bishoprics of Kilmore and Ardagh, the latter of which he resigned in the following year. He immediately set himself to reform abuses in his diocese, and with so happy a combination of wisdom, firmness, and charity, that even those whom his reforms disturbed conceded his virtues. The translation of the Old Test. into Irish was finished under B.'s direction. On the breaking out of the rebellion in 1641, his popularity for some time saved his family from violence, his being the only English house in the county of Cavan that was spared, though he at length was seized, and imprisoned in the castle of Cloughboughter.

BEDELLUS, n. *bē-dēl'ūs*, or **BEDEL**, n. *bē'dēl* [mid. L. *bedellus*: AS. *bydel*: It. *bidello*]: a higher beadle or officer of a court or university. **BEDELRY**, n. *bē'dēl-rī*, the extent of a beadle's office; in *Scot.*, a church officer is called a **BEADLE**, **BEDRAL**, or **BETHRALL**.

BEDEVIL—BEDFORD.

BEDEVIL, n. *bě-děv'ł*: to treat with diabolical violence or ribaldry. **BEDEVILLED**, pp. **BEDEVILLING**, imp.

BEDEW, v. *bě-dū'* [*be*, and *dew*]: to wet, as with dew; to moisten gently. **BEDEW'ING**, imp. **BEDEWED**, pp. *bě-dūd'*. **BEDEW'ER**, n. one who.

BED'FORD, *běd'ford* [Saxon, *Bedcanford*, town of the ford]: chief town of Bedfordshire; on the Ouse (navigable thence to the sea, a distance of 74 m.), about 49 m. n.n.w. of London by rail, and in the midst of a broad expanse of rich pasture, wheat, and barley lands. The town is clean and well paved, and the drainage has been recently greatly improved by the board of health. The charitable and educational institutions of B. are due mostly to Sir W. Harpur, alderman of London, 1561, who founded a free school, and endowed it with 13 acres of land. The enormous increase in the value of the property (from £150 to £14,000 or upwards a year) enables the trustees to maintain grammar, modern, and preparatory schools for boys, the same class of schools for girls, and 45 almshouses. Formerly, much of the charity was under the control of popularly elected trustees, but under the Endowed Schools Act the constitution has been changed. Now, the governing body consists of 27, instead of 52, members—6 *ex officio* (the mayor of B., the lord-lieut. of the county, and the members of parliament for the town and county), 9 nominated, and 12 representative. The eleemosynary element—shown in the maintenance of almshouses, the giving of marriage-portions and apprentice-fees, etc.—used to be predominant in the distribution of the charity, but now the educational prevails, the funds being annually divided thus: One-eleventh to the maintenance of the almshouses; two-elevenths to elementary education; four-elevenths to the grammar school, and high school for girls; and four-elevenths to the modern schools. The only important manufacture of B. is that of iron goods, especially agricultural implements. Lace-making and straw-plaiting employ many poor women and children. A considerable traffic in malt, timber, coals, and iron is maintained with Lynn Regis, by means of the Ouse. B. is of great antiquity, and is mentioned in the Saxon Chronicle under the name of Bedcanford, as the scene of a battle between the Britons and Saxons in 571. The Danes burnt it, 1010. Its old castle, said to be built by Edward the Elder, is frequently mentioned in history. B. elects one M.P. (two before 1885). John Bunyan was born near B. He dreamed his immortal dream in B. jail, and ministered to the Baptist congregation in Mill Lane from 1671 to his death in 1688. The inhabitants still hold his memory in deep veneration, and some relics of him are preserved. A handsome new building, Italian in style, for the Bunyan schools, was completed, 1867. A bronze statue of Bunyan was erected by the Duke of Bedford. 1874. Pop. (1871) 16,850; (1881) 19,532; (1891) 28,027.

BEDFORD, JOHN PLANTAGENET, Duke of, Regent of France: abt. 1389–1435, Sep. 19; third son of Henry IV.

BEDFORD LEVEL.

of England. During his father's lifetime, he was governor of Berwick-upon-Tweed, and warden of the Scottish marches. In 1414, the second year of his brother's reign, he was created Duke of B.; and he was made commander-in-chief of the forces in England while Henry V. was carrying on the war in France. After the death of Henry V. (1422), B., in accordance with the dying wish of the king, left the affairs of England in the hands of his brother Gloucester, and went to France to look after the interests of the infant prince, his nephew. The regency of France, in compliance with a request of his deceased brother, he offered to the Duke of Burgundy, who refused it; he then assumed it himself, but not without consulting Burgundy as to the best method of carrying out the treaty of Troyes, by which Charles VI. declared Henry V. next heir to the French crown. On the death of Charles VI., a few months after Henry V., B. had his nephew proclaimed king of France and England, as Henry VI. In the wars with the dauphin which followed, B. displayed great generalship, and defeated the French in several battles—most disastrously at Verneuil, 1424. But, in consequence of the parsimonious way in which men and money were doled out to him from England, and the withdrawal of the forces of the Duke of Burgundy, he was unable to take full advantage of his victories. The appearance of Joan of Arc, notwithstanding the utmost energy of B., was followed by disaster to the English arms; and in 1435, B. was mortified by the treaty of peace negotiated at Rouen between Charles VII. and the Duke of Burgundy, which effectually ruined English interests in France. His death was due mainly to his anxiety and vexation in view of this event. B., who was a patron of letters, purchased and removed to London the Royal Library of Paris, consisting of 900 vols. There have been two distinct dukedoms of B. For the present family of B., see RUSSELL, HOUSE OF.

BEDFORD LEVEL: extensive tract of flat land on the e. coast of England, embracing nearly all the marshy district called the Fens. It extends inland around the Wash into the six counties of Northampton, Huntingdon, Cambridge, Lincoln, Norfolk, and Suffolk, and has an area of abt. 450,000 acres. Its inland boundary forms a horse-shoe of high lands, and reaches the towns of Brandon, Milton—3 m. n.n.e. of Cambridge—Earith, Peterborough, and Bolingbroke. It is divided into three parts—the n. level, between the rivers Welland and Nene; the middle, between the Nene and the Old Bedford river; and the s., extending to Stoke, Feltwell, and Mildenhall. It is intersected by many artificial channels, as well as by the lower parts of the rivers Nene, Cam, Ouse (Great and Little), Welland, Glen, Lark, and Stoke. It receives the waters of the whole or parts of nine counties. This district seems to have been a great forest at the time of the Romans, who cut the forest down; formed great embankments, to exclude the tide; and rendered the tract for a time a fertile inhabited region. The Emperor Severus, in

BEDFORDSHIRE.

the 3d c., made roads through it, one of which is now covered with two to five feet of water. In the 13th c., violent incursions of the sea stopped the outflow of the rivers, and it became a morass. The practicability of draining this extensive region seems to have been thought of as early as 1436, and many partial attempts were made. The first effectual effort was in 1634, when Francis, Earl of Bedford, after whom the district was thenceforth called, obtained, with 13 others, a charter to drain the level, on condition of receiving 95,000 acres of the reclaimed land. The work was partially accomplished in three years, at the expense of £100,000; but was pronounced by the government to be inadequate. Charles I. tried to get the work, with a greatly increased premium, into his own hands; but the civil war stopped further progress. In 1649, parliament confirmed William, Earl of Bedford, in the rights granted to his father; and after a fresh outlay of £300,000, the contract was fulfilled. In 1688, a corporation was formed for the management of the level. The middle level has always been the most difficult to manage. St. Germain's sluice, at the confluence of the great drain in this district with the Ouse, was considered perfectly secure. But in 1362, May, this sluice gave way under the pressure of a strong tide, and the w. bank of the middle level drain burst, speedily flooding about 6,000 acres of fertile land. This led to the construction of a permanent coffer-dam of pile work, to shut off the tidal waters; and for the drainage of the middle level, Slater's-Lode sluice, the old outlet to the Ouse, was taken advantage of; and siphon pipes were laid over the coffer-dam, the flood-waters let off by them and by drains; the siphons acting as a permanent sluice.

BEDFORDSHIRE: a midland co. of England, bounded n.e. by Huntingdon, e. by Cambridge; s.e. and s. by Hertford; s.w. and w. by Buckingham; and n.w. by Northampton: 37th of the 40 English counties in size, and 36th in population. Extreme length, 31 m.; breadth, 25; area, 463 sq. m., five-sixths being arable, meadow, and pasture lands. The general surface is level, with gentle undulations. In the s., a range of chalk-hills, branching from the Chilterns, crosses B. in a n.e. direction from Dunstable, and a parallel range runs from Ampthill to near the junction of the Ivel with the Ouse. Between the latter ridge and the n.w. part of the co., where the land is also somewhat hilly, lies the corn vale of Bedford. No hill in B. much exceeds 900 ft. in height. The chief rivers are the Ouse (running through the centre of the county, 17 miles in a direct line, but 45 by its windings), navigable to Bedford; and its tributary the Ivel, navigable to Shefford. By these rivers, B. communicates with the counties of Cambridge, Huntingdon, and Norfolk. The s. and s.e. parts of the co. consist of chalk, and the n. and n.w. of oolitic strata. Freestone is quarried, as well as chalk or clunch, to be burnt for lime. The soil varies greatly. In the s. of the county, it is chalk thinly covered with earth, and fit only for sheep-walks; but three-fourths of the

BEDIGHT—BEDLAM.

county is clay, which is very stiff between the Ivel and Ouse. A rich gravelly loam borders the rivers. In the vale of Bedford, the soil is chiefly rich clay and deep loam; and to the n., the clay is stiff, poor, and wet. There are extensive market-gardens, especially on the rich deep loams. B. is the most exclusively agricultural county in England. The total acreage of B. is 295,509 acres, of which, in 1881, 259,171 were in crop, fallow, and grass (wheat, 46,379 acres; barley, 31,053; green crops, 31,868 acres); while the co. contained above 32,000 cattle and 140,000 sheep. The principal proprietors are the Duke of Bedford, the Marquises of Tavistock and Bute, Earl de Gray, Lords Holland, Carteret, and St. John. Lace-making and straw-plaiting by women—for which Dunstable is celebrated—are the only manufacturing industries of any extent. B. is divided into 9 hundreds, and contains 10 market-towns, 122 parishes, and 6 poor-law unions. Two members of parliament are returned for the co. of B., and one for the town of Bedford. Many British and Roman antiquities are in B., as well as the ruins of several monasteries, and some fine relics of Anglo-Saxon, Early English, and Norman architecture among the parish churches. Three Roman ways crossed the co., and several earthwork camps remain. Pop. (1891) 160,729; (1901) 171,700.

BEDIGHT, *v.* *bě-dīt'*: to dress, especially in splendid raiment; to equip; to deck; to adorn. **BEDIGHTED**, *a.* (used chiefly in composition); set off. **ILI-BEDIGHTED**, disfigured. **BEDIGHTING**, *imp.*

BEDIM, *v.* *bě-dīm'* [*be*, and *dīm*]: to darken; to obscure. **BEDIMMING**, *imp.* **BEDIMMED**, *pp.* *bě-dīmd'*.

BEDIRT, *n.* *bě-dirt'* [*be*, and *dirt*]: in *Scotch*, to befoul with ordure. **BEDIRTEN**, *pp.*

BEDIZEN, *v.* *bě-dīz'n* [*be*, and OE. *dīzen*, to clothe a distaff with flax: Gael. *āeiseachd*, dress, elegance: F. *badigeoner*, to rough cast in plaster]: to load with ornament; to dress with unbecoming richness. **BEDIZENING**, *imp.* *bě-dīz'nīng*. **BEDIZENED**, *pp.* *bě-dīz'nd*.

BEDLAM, *n.* *běd'lām* [contr. from the hospital of St. Mary of *Bethlehem* in St. George's Fields, London, used as a house for the insane]: a madhouse; a lunatic asylum; a place where there is a great deal of noise and uproar. **BED'LAMITE**, *n.* *-īt*, one confined in a madhouse. *Bethlehem* was originally founded in Bishopsgate Street Without, 1246, by Simon Fitz-Mary, one of the sheriffs of London as 'a priory of canons with brethren and sisters.' When the religious houses were suppressed by Henry VIII., the one in Bishopsgate Street fell into the possession of the corporation of London, who converted it into an asylum for 50 or 60 insane persons. In 1675, the hospital was taken down, and a new one, affording accommodation for about 150 patients, was erected in Moorfields, at a cost of about £17,000. In 1814, the hospital was again pulled down, and the patients transferred to a new hospital in St. George's Fields, erected for 198 patients; but in 1838 extended so as to accommodate 166 more.

BEDLINGTON TERRIER.

The building, with its grounds, now covers an area of 14 acres, and is lacking in nothing likely to insure the comfort or promote the recovery of patients. In former times, the management of B. was deplorable. The patients were exhibited to the public, like wild beasts in cages, at so much per head, and were treated and made sport of by visitors, as if they had been animals in a menagerie. The funds of the hospital not being sufficient to meet the expenditure, partially convalescent patients, with badges affixed to their arms, and known as Tom-o'-Bedlams, or 'Bedlam Beggars,' were turned out to wander and beg in the streets. Edgar, in Shakespeare's *Lear*, assumes the character of one of these. This practice, however, appears to have been stopped before 1675; an advertisement in the *London Gazette* of that date, from the governors of B., cautions the public against giving alms to vagrants representing themselves as from the hospital, no permission to beg being at that time given to patients. Now, the moral and physical management of the patients is so excellent, that annually more than one half of their number are returned as cured.

BEDLINGTON TERRIER *bed'ling-ton tēr'ri-ēr*: dog so called from a village and parish of that name in North-



Bedlington Terrier.

umberland, one of the districts in which the race has been extensively bred. The chief points of a model Bedlington terrier are the following: Muzzle rather long and fine, but powerful; head, high and rather narrow, the hair on the top being more silky and of a lighter color than on the rest of the body; eyes, small, round, and rather sunk; ears, filbert-shaped, hanging close to the head, slightly feathered at the tips; neck, long, slender, but muscular; body, well proportioned, slender, and deep chested; toes, well arched; legs, straight and rather long; tail, tapering to a point, with no feather; coat, somewhat fine but not silky, short and rather thin; color, liver or sandy, with dark flesh-colored nose, or blue-black, with black nose; height, 13 to 15 inches. The Bedlington terrier is greatly valued on account of its unsurpassed courage, its speed, and its sagacity. It is determinedly hostile to all kinds of vermin,

BEDMAR—BEDNORE.

and will face even the otter, fox, or badger without flinching. It is also a capital water-dog. The n. of England is the district *par excellence* of the true Bedlington terrier, the dogs reared by breeders at or in the neighborhood of Newcastle usually receiving the awards of merit at dog-shows. The origin of the Bedlington terrier is not certainly known, but it seems proved that the breed existed in Rothbury (also in Northumberland, to the n. of Bedlington) before it was known in the district whence it takes its name.

BEDMAR, *běd-mâr'*, ALFONSO DE CUEVA, Marquis de: 1572-1655: notable for his daring and unscrupulous plot for the destruction of Venice, to which city he had been appointed ambassador from the court of Spain, 1607. It was a difficult office to fill, for Venice and Spain cherished most unfriendly feelings towards each other. B. probably conceived that he was acting a patriotic and justifiable part, in taking advantage of his position to play the spy and conspirator; but whether or not, his scheme was contrived with admirable ingenuity. He first leagued himself secretly with the Duke of Ossuna, viceroy of Naples, and Don Pedro of Toledo, gov. of Milan, whom he made his confidants and coadjutors. He then purchased the services of a large number of foreign mercenaries, and scattered them through the city, to prevent suspicion. Ossuna furnished him with a band of semi-pirates, who were to enter the Venetian fleet, corrupt the sailors, and hinder operations in any way they could. The conspirators were to set fire to the arsenal of the republic, and seize all the important posts. At this precise moment, the Milanese troops were to appear at the extremity of the mainland, and those sailors who had been seduced from their allegiance were to convey them rapidly over to Venice. A Spanish fleet was to creep up the Adriatic, in order to assist if necessary. The city was then to be plundered and destroyed. The day chosen was that on which the doge wedded the Adriatic, when all Venice was intent on beholding the august ceremony. Fortunately, the night before the crime was to have been perpetrated, one of the conspirators betrayed the whole. Several persons were executed; but strangely, B., the arch-delinquent, was only dismissed. This has excited the skepticism of many writers as to the truth of the accusation; but the evidence in favor of the historic reality of the plot is generally held incontestable. The event forms the subject of Otway's popular and pathetic play, *Venice Preserved*. B. then went to Flanders, where he became pres. of the council, and, 1622, was made a cardinal by the pope. He then went to Rome, and finally returned to Spain as Bishop of Oviedo, where he died. He is said to have been the author of a pamphlet published 1612, against the liberties of Venice, entitled *Squittino della Liberta Veneta*.

BEDNORE, *běd'nôr*, or NUGGUR, *nŭg'gŭr*: decayed city of Mysore, India; in the midst of a basin in a rugged table-

BED OF JUSTICE—BEDOUIN.

land of the Western Ghauts, more than 4,000 ft. above the sea; n. latitude, 13° 50', e. long. 75° 6'; 150 m. n.w. from Seringapatam. It was formerly the seat of govt. of a rajah, and its population exceeded 100,000. In 1763, it was taken by Hyder Ali, who pillaged it of property to the estimated value of \$60,000,000 and subsequently made it the seat of his own govt., calling it Hydernuggur (Hyder's Town), of which the name Nuggur is an abridgment. It was taken by the British under General Matthews, 1783, but soon retaken by Tippoo, at the head of a vastly superior force, when General Matthews and all the principal British officers were put to death. The neighboring country is mostly covered with dense and luxuriant forests.

BED OF JUSTICE: literally, the seat or throne occupied by the French monarch when he was present at the deliberations of parliament. Historically, a B. of J. signified a solemn session, in which the king was present, to overrule the decisions of parliament, and to enforce the acceptance of edicts or ordinances which it had previously rejected. The theory of the old French constitution was, that the authority of parliament was derived solely from the crown; consequently, when the king, the source of authority, was present, that which was delegated ceased. Acknowledging such a principle, the parliament was logically incapable of resisting any demand that the king in a B. of J. might make, and decrees promulgated during a sitting of this kind were held to be of more authority than ordinary decisions of parliament. Monarchs were not slow to take advantage of this power to overawe any parliament that exhibited signs of independence. The last B. of J. was held by Louis XVI. at Versailles, 1787, Sep.

BEDOS DE CELLES, *béh-dōs dēh sēl'*, DOM JEAN FRANÇOIS: abt. 1706-79: b. Chaux, France: Benedictine monk of the congregation of St. Maur, the most learned and practical master of the art of organ-building in the 18th c., whose work on the art is to the present day of great importance. He entered his order, 1726, at Toulouse, where he built several large and superior church organs. He was elected a member of the Acad. of Sciences, 1758; in 1770, he completed for the Acad. his great work, *L'Art du Facteur d'Orgues*, 4 vols., large folio, with 137 copperplates, beautifully executed. This work has never been translated into English, but the greater part of it has been translated into German.

BEDOUIN, n. *bēd'ōū-ēn'* [F. *bédouin*; Ar. *bedawi*, living in the desert—from *badw*, a desert]: an Arab of one of the unsettled tribes of Arabia and northern Africa. The Bedouins are generally regarded, according to tradition, as descendants of Ishmael, and the aborigines of Arabia. The most ancient notices found in Scripture agree, in their descriptions of the manners and customs of the Bedouins, with the facts of the present time. As nomads, they have no united history, but only a collection of genealogies. They have but seldom appeared as a united

BEDOUIN.

people, taking a prominent part in the world's politics, and have never been entirely held in subjection by any foreign power. The desert of Arabia, especially the plateau of Nedjid, is their central place of abode; but, even in ancient times, they had spread themselves over the deserts of Egypt and Syria; and in later times, after the decay of ancient civilization, they entered Syria, Mesopotamia, and Chaldæa. The conquest of n. Africa, in the 7th c., opened to them still vaster tracts, and they soon extended themselves over the Great Desert to the shores of the Atlantic Ocean. At present, they are to be found scattered over an immense breadth of territory—viz., from the w. boundary of Persia to the Atlantic, and from the mountains of Kurdistan to the negro countries of Sudan. In the cultivated lands of Mesopotamia, Chaldæa, the Syrian confines, Barbary, Nubia, and the n. of Sudan, the Arabs are found intermingled with other nations; but in the deserts they have maintained their distinct character and independence. The characteristics of the Bedouins, as herdsmen and robbers in the desert, are intimately connected with the nature of their habitation. Their abstinent, precarious, and often solitary mode of life makes them disposed to exercise mutual hospitality; but their independence, love of liberty, and other good qualities are associated with violent passions and an infamous love of plunder, which is utterly reckless of the rights of property. They are generally well-made men, lean, sinewy, and active; but, on account of frequent hardships and privations, are commonly below middle stature. Their senses, especially sight, are keen, and their carriage is free and independent. The nose is commonly aquiline, the face rather lengthened, and the eyes are well shaped and expressive of both daring and cunning. In complexion, they have various shades of brown. With the exception of certain tribes in Syria, all the Bedouins are professedly Mohammedans, but not strict in the observance of their religious rites and duties. Their *Marabuts* (q.v.)—a class of ascetics—take the place of priests, and exercise considerable influence in all social and public affairs. As the Arabs have no settled government or policy, religious traditions and customs form the only bond of order and union among them. Though their intellectual powers are naturally good, they are miserably destitute of solid knowledge. Their endless tales and poetical effusions show a wonderful activity of imagination and an oriental love of hyperbole. The relation of the sexes to each other is less constrained than among the settled peoples of the East, and a substitute for polygamy is found in a frequent interchange of wives. Their favorite pastimes are the chase, ball-play, dancing, songs, stories, and the *dolce far niente* (pleasant laziness) of drinking coffee and smoking narghiles. Their diet is principally derived from their herds, but includes a few vegetables, and even locusts and lizards. Honey is a principal luxury with all classes, and, moreover, one which has a religious sanction, for it was indulged in by Mohammed himself, who makes copious mention of

BEDRAGGLE—BED-SORES.

it in the Koran. They manufacture their own woollen clothing, which consists of the *haikh*—a long, wide garment fastened on the head, and descending to the feet—and the *burnoose*, a large mantle. Only superior men wear breeches and linen or cotton shirts. The hair of the head is shaven, but the beard is a favorite object of cultivation. The political condition of the Bedouins may be styled patriarchal. One or more families, the males of which bear the title of *sheik*, form the core of a tribe, and with the marabouts, or priests, constitute a kind of aristocracy. Out of their number, the superior *sheik*, or kaid, is elected, who rules in patriarchal style over the whole tribe. This general sketch applies chiefly to the true nomads, or 'dwellers in the desert,' and is subject to several modifications with regard to tribes located in Barbary, Syria, and Mesopotamia, who practice agriculture, and dwell in houses.

BEDRAGGLE, v. *bě-drăg'gl* [*be*, and *draggĭe*]: to soil the clothes by suffering them in walking to reach the dirt. **BEDRAG'GLING**, imp. **BEDRAG'GLED**, pp. *-gld*.

BED-SORES: a very troublesome complication of disease, to which a patient is liable when for a long time confined to bed, and either unable or not allowed to change his position. Thus they are liable to occur in cases of continued fever, or any other prolonged debilitating disorder, in paralysis from injury of the spinal cord, and in cases of fracture of the thigh. The skin, at certain projecting bony parts, chiefly about the region of the buttocks, or on the heel, is apt to inflame, ulcerate, and slough, especially if the patient is not kept perfectly clean—as, for example, when the evacuations and urine escape involuntarily. The patient sometimes complains of a sense of discomfort at the parts, as if he were lying on dry crumbs of bread; at other times, he seems to feel nothing. Hence in all cases of prolonged supine position, the parts naturally pressed upon by the weight of the body should be carefully examined every day or two, as prevention is far easier than cure. When a long confinement to bed is expected, attempts should be made to thicken the cuticle, and enable it to bear pressure better, by rubbing the skin with a stimulant such as spirits or eau-de Cologne. If the part, when first seen, looks red and rough, further damage is often prevented by covering it with a piece of calico, on which soap-plaster has been spread; the local pressure may be removed by air-cushions specially constructed for cases of this kind, and in many instances a water-bed (q.v.) affords great comfort. If the case is one in which it is admissible, the patient should be made to alter his position frequently. When there are excoriations, and a threatening of sloughing, a poultice composed of equal parts of bread-crumbs and of finely-grated mutton suet, mixed over the fire in a saucepan, with a little boiling water, is often a comforting and useful application. After sloughing has fairly begun, stimulating applications, such as resin ointment, must be applied. Bed-sores come on

BEDSTRAW.

earlier in cases of fractured spine than in any other: they generally appear by the fourth day, and have been seen two days after the accident. They usually form one of the most powerful agents in destroying life in cases of this accident, diseases of the urinary organs being the other.

BEDSTRAW (*Galium*): a genus of plants belonging to the nat. ord. *Rubiaceæ* (q.v.), and distinguished by a small wheel-shaped calyx, and a dry two-lobed fruit, each lobe containing a single seed. The leaves, as in the rest of the order, are whorled, and the flowers minute; but in many of the species the panicles are so large and many-flowered that they are ornamental. The species are very numerous, natives chiefly of the colder parts of the n. hemisphere, or of mountainous regions within or near the tropics. Among the species is the **YELLOW B.** (*G. verum*)—sometimes called **CHEESE RENNET**, because it has the property of curdling milk, and is used for that purpose—a small plant with linear deflexed leaves and dense panicles of bright yellow flowers, very abundant on dry banks. The flowering tops



Yellow Bedstraw (*Galium verum*).

a, top of stem, showing leaves and flowers: *b*, *c*, two views of a flower.

boiled in alum afford a dye of a bright yellow color, much used in Iceland; and the Highlanders of Scotland have long been accustomed to employ the roots, and especially the bark of them, for dyeing yarn red. They are said to yield a red color fully equal to that of madder, and the cultivation of the plant has been attempted in England. The roots of other species of the same genus possess similar properties, as those of *G. trifidum*, variety *tinctorium*, abundant in swamps, and of this or one of several other N. American species, used by some of the Indian tribes. Like madder, they possess the property of imparting a red color to the bones and milk of animals which feed upon them. Medicinal virtues have been ascribed to some of the species, as *G. rigidum* and *G. Mollugo*, which have been extolled as useful in epilepsy.—The roasted seeds of some, as *G. Aparine*, the troublesome *Goosegrass*, or *Cleavers*, of our hedges—remarkable for the hooked prickles of its stem, leaves, and fruit—have been recommended as a substitute for coffee; but it does not appear that they contain any principle analogous to caffeine. This plant is a native of the n. parts equally of Europe, Asia, and America. Its expressed juice is in

Some countries a popular remedy for cutaneous disorders.—The roots of *G. tuberosum* are farinaceous, and it is cultivated in China for food.—The name B. is supposed to be derived from the ancient employment of some of the species, the herbage of which is soft and fine, for strewing beds.

BEDUM, *bā'dum*: town in the n.e. of Holland, about 12 m. from the mouth of the Ems, 10 m. from the coast of the North Sea. Pop. 4,323.

BEDUSCHI, *bā-dōs'kē*, ANTONIO: 1576: an Italian painter, born at Cremona, and who distinguished himself at an early day. Among his best works are *Martyrdom of St. Stephen*, and *Virgin at the Tomb*, that may be seen at Piacenza, in the n. of Italy.

BEDUZZI, ANTONIO; 18th c.: an Italian painter and architect, disciple of Joseph del Sole. He worked principally at Vienna.

BED'WELL, WILLIAM: abt. 1562–1632: English divine and oriental scholar: one of those engaged on the King James version of the Scriptures.

BED'WIN, GREAT. town of Wiltshire, on the Kennet and Avon canal, and the Great Western railway, 69 m. w. by s. of London. A fierce, indecisive battle occurred here in 674, between the kings of Mercia and Wessex. St. Mary's Church was built in the beginning of the 14th c., and is constructed of flint, except the piers, arches, and dressings, of freestone. Jane Seymour, one of the queens of Henry VIII., and Dr. Willis, eminent physician of the 17th c., were born here. In the end of last c., the remains of a Roman villa were discovered, including tesserae, bricks, a tessellated pavement, a huge leaden cistern, and the foundations of baths. Pop. of parish, 2,500.

BED'WORTH: town in Warwickshire, 5 m. n. of Coventry, and 96 m. n.w. of London. Ribbons and trimmings are made in the town, and silk-mills, malt-kilns, lime-kilns, brick-fields, and collieries in the neighborhood furnish employment to many of the inhabitants B. is a station on the Coventry and Nuneaton railway Pop. both of town and of parish is decreasing of late years.

BEE.

BEE, n. *bē* [AS. *beo*; Ger. *biene*; Gael. *beach*; Icel. *by*; Sks. *bha*, a bee]: an insect that makes honey and wax. BEEHIVE, n. *bē'hīv*, a case or box in which domestic bees build their honeycombs and store their honey. BEE-BIRD, a local English name for the spotted Flycatcher, *Muscicapa grisola*. BEE-BLOCK, one of the blocks of hard wood bolted to the sides of the bowsprit-head, for reeving the foretopmast stays through. BEE-FEEDER, a device for feeding bees in bad weather or protracted winters. It consists of a small perforated piece of board which floats on the liquid food. BEE-FLOWER, a kind of orchis whose flowers represent singular figures of bees and flies. BEE-FUMIGATOR, a blower for driving smoke into a hive to expel the bees from the hive, or a portion of it, while the honey is being taken away. BEE-GARDEN, an inclosure where bees are reared. BEE-GLUE, propolis, the glue-like or gummy substance with which bees affix their combs to the hive and close their cells. BEE-HAWK, the honey-buzzard. BEE HAWK-MOTH, the name given to some species of the family *Sphingidae*. They have a certain resemblance, which is of analogy and not affinity, to bees. Species of the genus *Sesia*, of the United States, are day-fliers, unlike most of the hawk-moths, and resemble humble-bees in appearance, but prettier. BEE-LARKSPUR, a well-known flowering plant, *Delphinium grandiflorum*. BEE-MOTH, the wax-moth, *Galleria cereana*, which lays its eggs in bee-hives, the larvæ, when hatched, feeding on the wax. BEE-PARASITES, n. the order of insects called *Strepsiptera*, which are parasitic on bees and wasps. BEE-LINE, in *Amer.*, the most direct line from one place to another. BEE MASTER, one who keeps and rears bees. BEE'S-WAX, *bēz-wāks*, the wax collected by bees. BEE'S-WING, a crust in port wine. BEE-BREAD, the pollen or dust of flowers collected by bees. BEE-EATER, a bird that feeds on bees. BEE IN ONE'S BONNET, in *Scot.*, unsettled in manners and disposition; flighty.

BEE: common name of a very large family of insects, of the ord. *Hymenoptera* (q.v.) belonging to the section of that order called *Aculeata*, in which the females are furnished not with an ovipositor, but (usually) with a sting. All bees were included by Linnæus in the genus *Apis* (Lat. for B.), but are now divided into many genera; and the name *Anthophila* (Gr. flower-loving) or *Mellifera* (Lat. honey-bearing) is given to the family which they constitute. All bees in a perfect state feed exclusively or chiefly on saccharine juices, particularly the nectar or honey of flowers; and the ordinary food of their young, in the larva state, is the pollen of flowers, or a paste, often called bee-bread, composed of pollen and honey. They evidently perform a very important part in the economy of nature, in the fertilization of flowers, which depends upon the contact of particles of the pollen with the stigma; and, as if to secure this object more perfectly, in their search for honey and pollen, they usually—some have perhaps too hastily said always—pass from flower to flower of the same kind, and not to flowers of different kinds indis-

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criminally. They abound in almost all parts of the world, but particularly in the warmer parts of it. Not fewer than 250 species are known as natives of Britain.

To enable them to reach their liquid food at the bottom of the tubes of flowers, and in the little receptacles in which it is produced, bees have certain parts of the mouth—the *maxillæ* and *labium* (see INSECTS), or lower jaws and lower lip, with their feelers (*palpi*)—elongated into a sort of proboscis; and the *ligula* is elongated, sometimes, as in the common Hive B., assuming the form of a filament, is capable of extension and retraction, and is folded up when not in use. This is the organ sometimes called the tongue of bees, although the name cannot be regarded as very appropriate, it being a part of the labium or lower lip. The other elongated parts of the mouth serve as a sort of sheath for this organ when folded up. It is not tubular, and employed in the manner of suction, as was at one time supposed, but is generally more or less hairy, so that the honey adheres to it as it is rolled and moved about, and is conveyed up through the mouth into the honey-bag, sometimes called the first stomach, an appropriate receptacle, in which it apparently undergoes some change—without, however, being subjected to any process analogous to digestion, and is ready to be given forth again by the mouth, according to the habits of those species of bees which are social, as food for the members of the community that remain at home in the nest, or to be stored up in cells for future provision. See HONEY. But the mouth of bees is also adapted for cutting and tearing, and to this purpose their mandibles or upper jaws are especially appropriated. Of these, some of them, as the common Humble B. (q.v.), make use to open their way into the tubes of flowers which are so deep and narrow that they cannot otherwise reach the nectar at the bottom. Others make use of their mandibles to cut out portions of leaves, or of the petals of flowers, to form or line their nests; the common Hive B. uses them in working with wax, in feeding larvæ with pollen, in cleaning out cells, in tearing to pieces old combs, in combats, and in all the great variety of purposes for which organs of prehension are required. But it is not by means of any of the organs connected with the mouth that bees collect and carry to their nests the supplies of pollen needful for their young. The feathered hairs with which their bodies are partially clothed, and particularly those with which their legs are furnished, serve for the purpose of collecting the pollen, which adheres to them, and it is brushed into a hollow on the outer surface of the first joint of the tarsus of each of the hinder pair of legs, this joint being therefore very large, compressed, and of a square or triangular form—a conformation to which nothing similar is found in any other family of insects. It is also worthy of observation, that in the social species of bees, the males and the queens, which are never to be employed in collecting pollen, do not exhibit this conformation adapted to it, but only the

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sexually imperfect females, commonly called neuters or workers.

Bees, like other hymenopterous insects, are extremely well provided with organs of sight, and evidently possess that sense in very great perfection. In the front of the head, they have two large eyes, the surface of each consisting of many hexagonal plates, which may be likened to the object-glasses of so many telescopes; and the faculty which these insects certainly possess, of returning in a direct line to their hive or nest, from the utmost distance of their wanderings, has been with greatest probability ascribed to their power of sight. But besides these large eyes, they have, like the rest of the hymenopterous order,



Bee Sting, highly magnified.

A, sting of bee; S, sheath of sting; F, end of sting, greatly magnified, showing six barbs curved upwards; B, glands for secreting poison; C, ducts through which it flows to D, where it is kept ready for use; O, circular dilatation to prevent sting being thrust too far out of sheath.

three small eyes on the very top of the head, which are supposed to be intended to give a defensive vision upwards from the cups of flowers.—They are evidently, however, possessed of organs which enable them to guide their movements in the dark as accurately as in the full light of day, at least within the nest or hive; and this power is generally ascribed to the *antennæ* (q.v.), which are sometimes supposed to be not merely delicate organs of touch, but also organs of hearing, or of some special sense unknown to us. It is certain that the social bees have some means of communicating with each other by means of their antennæ; and that they avail themselves of these organs both for their ordinary operations, for recognition of each other, and for what may be called the con-

duct of the affairs of the hive. There can be no doubt that bees possess in a very high degree the sense of smell; and their possession of the senses of taste and hearing is almost equally unquestionable, whatever difficulty there may be in determining the particular organs of the latter sense.—The wings of bees, like those of other hymenopterous insects, are four in number; thin and membranaceous; the hinder pair always smaller than the others; and, in flight, attached to them by a number of small hooks, so that the four wings move as if they were two.

The sting of bees is a very remarkable organ. It consists of two long darts, with a protecting sheath. A venom bag is connected with it, and powerful muscles for its propulsion. The wound appears to be first made by the sheath, along which the poison passes by a groove; and the darts thrust out afterwards in succession, deepen the wound. The darts are each furnished with a number of barbs, which render it so difficult to withdraw them quickly, that bees often lose their lives by the injury which they sustain in the effort.—The males are destitute of sting.

The great family of bees is divided into two principal sections called *Andrenetæ* and *Apiariæ*, or *Andrenidæ* and *Apidæ*; the latter names, however, being sometimes employed in senses more restricted. In the first of these sections, the *ligula* is comparatively short and broad; in the second, it is lengthened, and has the form of a filament. All the *Andrenetæ* live solitarily, as well as several subdivisions of the *Apiariæ*. These solitary bees do not lay up stores for their own winter subsistence; but they display very wonderful and various instincts in the habitations which they construct and the provision which they make for their young. There are among them males and perfect females only, and no neuters. The work of preparing nests and providing food for the young seems, in all of the species, to be performed exclusively by the females. *Colletes succincta*, a common British species of the *Andrenetæ*, affords an example of a mode of nest-making, which, with various modifications, is common to many species of that section. The parent B. excavates a cylindrical hole in the earth, usually horizontal, to the depth of about two inches, in a dry bank or a wall of stones and earth. The sides of this hole are compacted by means of a sort of gelatinous liquid, secreted by the insect, and it is occupied with cells, formed of a transparent and delicate membrane, the substance of which is the same secretion in a dried state. The cells are thimble-shaped, fitting into each other, a little space being left at the furthest end of each for the reception of an egg and a little paste of pollen and honey. The last cell being completed, and its proper contents deposited in it, the mouth of the whole is carefully stopped up with earth.—Some of the solitary bees, possessing great strength of mandibles, excavate their nests in old wood. *Xylocopa violacea*, one of the *Apiariæ*, common in parts of Europe, makes a tunnel not less than

twelve or fifteen inches long, and half an inch wide, which is divided into ten or twelve cells; an egg with store of pollen and honey is deposited in each compartment, and as the lowest egg is hatched first, a second orifice is provided at that part of the tunnel, through which each of the young ones in succession comes forth to the light of day, each larva, as it is about to change into the pupa state, placing itself with its head downwards in the cell.—Numerous species of solitary bees excavate their tunnel-shaped nests in the soft pith of decayed briars or brambles, of the particles of which they also form their cells.—Some species of *Megachile*, *Osmia*, etc., line them and divide them into cells with portions of leaves or of the petals of flowers. See LEAF-CUTTER BEE. Some of the solitary bees make their nests, not in the earth, but in cavities of decaying trees, or other such situations, where they construct their cells without the same necessity of excavation; but some of them, by a very admirable instinct, surround their nest with down collected from the leaves of plants, an excellent non-conductor of heat, so that a nearly uniform temperature is maintained in situations in which the changes would otherwise be great and rapid. Some bees make their little nests in old oak-galls, and there are species which appropriate empty snail-shells to that use.—Some species of the genus *Megachile* build their nests of a sort of mason-work of grains of sand glued together with their viscid saliva. The nest of *M. muraria*, thus constructed, is so hard as not to be easily penetrated by a knife, and very much resembles a splash of mud upon a wall.

The social bees live in communities like those of ants, which also, like theirs, consist of males, females, and neuters—these last being females with ovaries imperfectly developed, and characterized by peculiarities of form and structure, as well as of instinct and employments, remarkably different from those of the perfect females. The social bees are conveniently divided into Humble Bees (q.v.) and Honey Bees, of the latter of which the common Hive B. (see the next section of this article) may be regarded as the type. The species of Honey B. (the restricted genus *Apis*) are not few, and they are natives of the warm parts of the old world; the Hive bees (*Apis mellifica*) which now abound in some parts of America, and which have become naturalized in the forests to a considerable distance beyond the abodes of civilized men, being the progeny of those which were conveyed from Europe. The Hive B. is said not to have been found to the w. of the Mississippi before 1797, but in fourteen years it had advanced 600 m. further in that direction. The different species of Honey B. in a wild state generally make their nests in hollow trees, or among the branches of trees, sometimes under ledges or in clefts of rocks; and their stores of honey are not only sought after by man, but afford food to numerous animals, some of which equally delight to prey upon their larvæ. The B. was among

the ancient Egyptians the hieroglyphical emblem or royalty. The B. domesticated or cultivated in Egypt is not, however, our common Hive B., but another species called *Apis fasciata*; and in Italy and Greece, and more recently in America, the 'Italian' bee, *A. Ligustica* is employed, which has a long proboscis, and can work red clover, which the Hive B. cannot do. These species differ little from the common Hive B., and their honey is very similar; but that of some species is considerably different. *A. unicolor*, of Madagascar and the Isle of France, yields an esteemed honey of a green color. It is domesticated, or is the object of human care and attention there, as are also *A. Indica* in some parts of India, and *A. Adansonii* in Senegal. The genus *Melipona* is nearly allied to *Apis*. The species are natives of S. America, and their honey is extremely sweet and agreeable, but very liquid, and apt to ferment. They make their nests in the cavities or on the tops of trees.

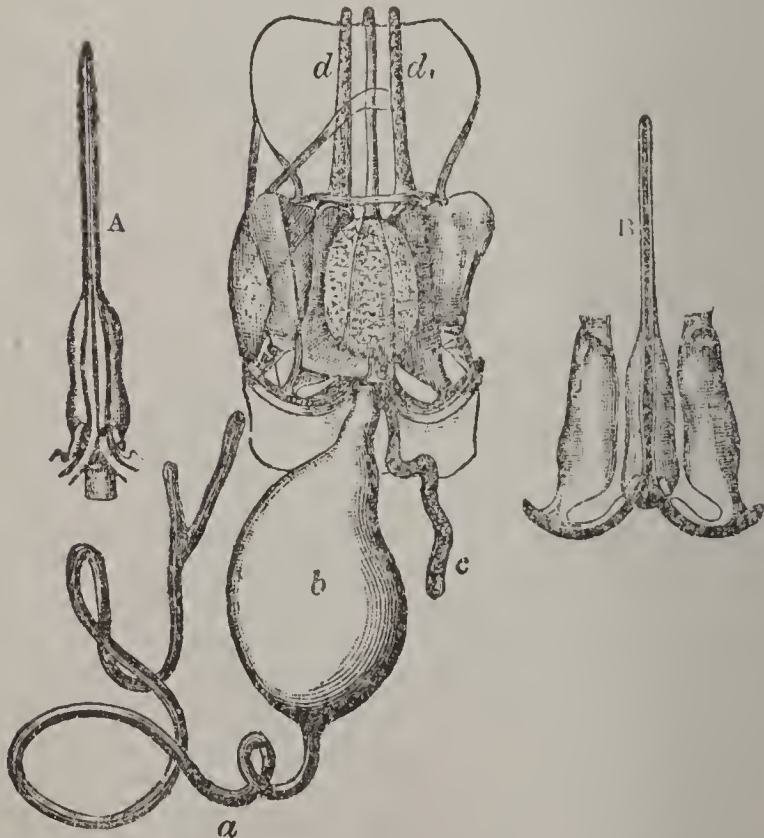
The Hive Bee.—Natural History.—The instincts and social economy of the HIVE B. (*Apis mellifica*) have been studied with great attention both in ancient and in modern times, and discoveries—than which, perhaps, nature presents nothing more interesting and wonderful—have rewarded the patient observations of Huber and other students of this subject. *Apiarian societies* have been formed for the purpose of prosecuting this single branch of natural history, and of promoting successful apiculture, or the economical keeping of bees.

The Hive B. may have been brought to Europe from the East. Its communities seem ordinarily to number from 10,000 to 60,000 individuals, and there appears no reason to think that the care bestowed upon the insect by man, or the *hives* which he has provided for it, have made any important difference in this respect. One member of each community is a perfect female—the queen or mother B.; from 600 to 2,000 at certain seasons are males; and the remainder are *neuters* or workers, the real nature of which has been explained in the previous part of this article.

The workers have a body about half an inch in length, and about one-sixth of an inch in greatest breadth, at the upper part of the abdomen. The antennæ are twelve-jointed, and terminate in a knob. The abdomen consists of six joints or rings, and under the scaly coverings of the four middle ones are situated the *wax-pockets* or organs for the secretion of wax. The extremity of the abdomen is provided with a sting, which is straight. The basal joint of the hind tarsi is dilated to form a pollen-basket, and the legs are well provided with hairs for collecting the pollen and brushing it into this receptacle.—The males or *drones*, so called from the peculiar noise which they make in their flight, are much larger than the neuters, and thicker in proportion. The antennæ have an additional joint. The eyes are remarkably large, and meet upon the crown.—The perfect females are considerably longer than either the workers or males; they are also distinguished by the yellow tint of the under part of the body, and very



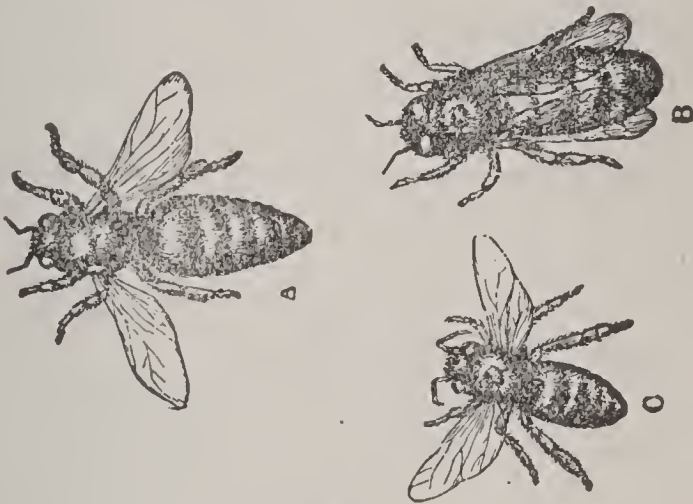
Mouth Organs of the Honey-bee (*Apis mellifica*): *a*, Tongue; *b,b*, Labial palps; *c,c*, First maxillae.



Sting of Worker-bee (*Apis mellifica*): *a*, Poison gland; *b*, Poisonbag; *c*, Accessory gland; *d,d*, Outer supporting pieces; *e*, Inner sheath, inclosing stinging proper; *A*, Stinging proper; *B*, Sheath in which stinging works, seen from below.

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remarkably differ from all the other inmates of the hive in the shortness of their wings, which, instead of reaching to the extremity of the abdomen, leave some of its rings uncovered.—Neither males nor queens have wax-pockets, nor have they pollen-baskets. Their legs also are less hairy. The sting of the queen B. is curved. The mandibles both of the males and perfect females are notched or toothed beneath the tip, which those of the workers are not.—It will be seen from this brief description that the sexes differ so widely as to appear, if the contrary were not well known, insects of different species; but still more remarkable is the difference between the females and the workers when we consider that it is all to be ascribed to the different forms of the cells in which the eggs are hatched and the young bees reared, and to the different kinds of food with which they are supplied. All doubt upon this point is removed by the interesting discovery of Schirach, that when a hive is deprived of its queen, the bees provide themselves with another, if there are eggs or



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A, queen; B, drone; C, worker.

very young larvæ in the cells appropriated to the breeding of workers; proceeding immediately to transform, for this purpose, one of these cells, and sacrificing, without scruple, the eggs or larvæ in the cells adjoining that selected for transformation and enlargement. These are facts well ascertained, but of which science has yet been unable to give any explanation.

The greater part of the life of the queen or mother bee is spent in laying eggs for the increase of the population of the hive; and this increase goes on at a rapid rate, as the queen frequently lays 300 eggs in a day. The number, however, varies greatly. In cold weather it is very small, but the invariable presence of brood in different stages, in a well-stocked hive, proves that some eggs are laid even in winter. During the later spring months the number is very great; many practical apiarians considering that as many as 1,000, or even 2,000, are deposited daily. The community, however, is not destined to an

indefinite increase; but in certain circumstances *swarming* takes place, and new colonies are founded.

The impregnation of the queen takes place in the air, and usually within a few days after she herself has emerged from the cell. It is the only occasion of her ever leaving the hive, except that of *swarming*, and there is no repetition of it during her whole life. The question has therefore been asked, why there are so many males in a B. community; but no very satisfactory answer has been given to it. The males are not known to fulfil any other purpose than that of the propagation of their species; and after the *swarming* season is over, the greater part of them are ruthlessly massacred by the workers, as if in dread of their consuming too much of the common store. The greater part of the workers themselves are supposed scarcely to live for a year; the duration of the life of queen bees is often more than three years.

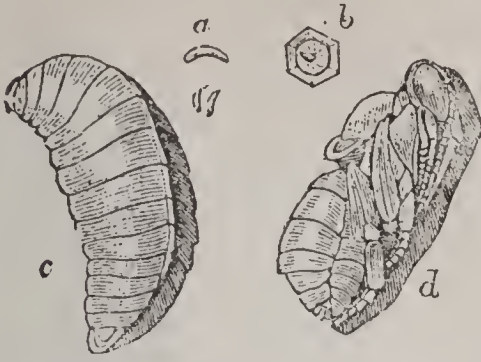
The queen B., when about to begin to lay eggs, is the object of great attention on the part of the workers, and so continues. She moves about in the hive, attended by a sort of retinue of about ten or fifteen workers, by some of which she is frequently supplied with honey. But the name of queen B. appears to have originated in a mistaken notion that something analogous to a monarchy subsists in the bee-hive; and imagination being permitted very free scope, many things have been invested with a false coloring derived from this analogy. The queen or mother B. appears to be the object of particular regard, as indispensable to the objects for which the B. community subsists, and to which the instincts of all its members are variously directed. She moves about, depositing her eggs in the cells which the workers have prepared, and they are ready to take charge of each egg from the moment that it is deposited. Her employment requires that she should be fed with food collected by others, and many of the workers are in like manner supplied with food while busy within the hive, as well as the larvæ in the cells; but there is no evidence whatever of anything like authority exercised by the queen, or, indeed, of any superiority of one over another in the whole multitude.

The queen B. at first lays eggs which give birth to workers, and afterwards there takes place a laying of eggs which become drones. With unerring instinct, she places each egg in the kind of cell appropriate to it; while also, at the proper time, cells of the proper kind are prepared beforehand by the workers, the drones' cells being larger than the workers' cells. The cells in which future queens are to be reared are very unlike all the others, but the eggs differ in no respect from those deposited in workers' cells. It is a curious circumstance, that queens, of which the fecundation has been prevented till they are considerably older than usual, lay only drone eggs. It occasionally also happens that some of the worker bees lay eggs, and these invariably produce drones.

The eggs of bees are of a long shape and bluish-white color, about one-twelfth of an inch in length. They are

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hatched in about three days. The larvæ are little worm-like creatures, having no feet, and lying coiled up like a ring; they are diligently fed by the working bees, until, in about five days, when large enough nearly to fill the cell, they refuse food, upon which the attendant bees seal up the cell with wax, and the larva, spinning itself a fine silken envelope or cocoon, is transformed into a pupa; and about the eighteenth



Egg, Larva, and Pupa of Hive Bee. *a*, egg, and very young larva; *b*, young larva coiled up at the bottom of the cell; *c*, larva when ready to undergo metamorphosis; *d*, pupa.

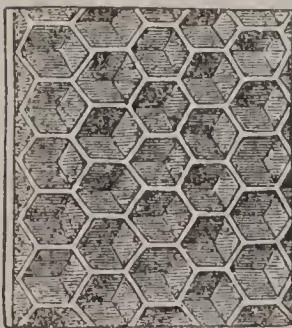
in its perfect state, breaks the covering, and issues from the cell. It is caressed and supplied with food by the attendant bees, and is believed not to try its wings until the following day. The cell from which a young B. has issued is speedily cleaned out, and prepared for the reception of another egg or of honey. The fine silken envelope of the pupa, however, remains attached to the cell, of which the capacity thus becomes gradually smaller, until the cells of old combs are too small to receive eggs, and can be used for honey alone, a fact of which the importance in relation to the economical management of bees is obvious.—The spinneret, by means of which the larva spins the cocoon, is a small organ connected with the mouth.—The food with which the larvæ are supplied is a mixture of pollen, honey, and water, with the addition, possibly, of some secretion from the stomachs of the working bees, in which it is prepared. It varies a little, according to the age and kind of the larva, and the peculiarities of that given to young queens appear to be indispensable to their fitness for their future functions. Pollen is constantly found stored up in the cells of the hive, and is often called bee-bread. Most people have found such cells in honeycomb, and have observed the bitter and peculiar taste of the contents.

The combs of a bee-hive are parallel to each other, forming vertical strata of about an inch in thickness, and distant about half an inch from each other. The cells are therefore nearly horizontal, having a slight and somewhat variable dip towards the centre of each comb. The central comb is generally first begun, and next after it those next to it on each side. Circumstances frequently cause some departure from this uniform and symmetrical plan, which, however, still remains obvious. Each comb consists of two sets of cells, one on each side, and it may be mentioned as an illustration of the wonderful industry of bees, and the results of their combined labors, that a piece of comb, 14 inches long by 7 inches wide, and containing about 4,000 cells, has often been known to be constructed

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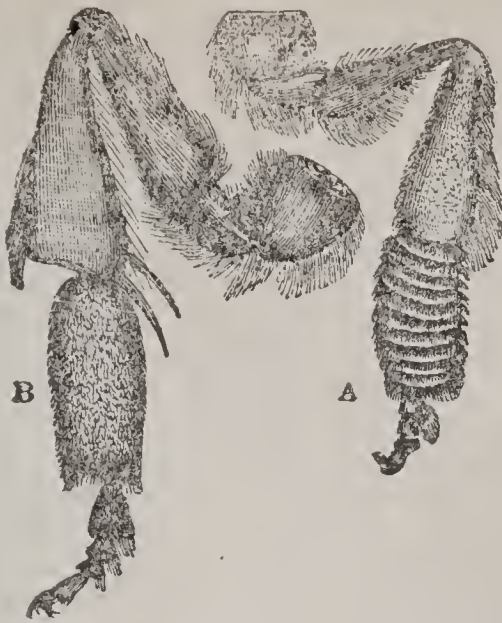
in 24 hours. The greater part of the comb usually consists of the kind of cells fitted for breeding workers, a smaller part of it of the larger or drone cells. After the principal breeding-season is over, the cells of some parts of the comb are often elongated for the reception of honey; and sometimes comb of greater thickness, or with unusually long cells, is constructed for that purpose alone, in which case the mouths of the cells are inclined upwards, more than is usual with the ordinary brood cells. When a cell has been completely filled with honey its mouth is *sealed* or covered with wax.

It is impossible to look at a piece of comb taken from a bee-hive, without admiring, not only its beauty, but the perfect regularity of the size, form, and arrangement of the cells; and the more carefully it is examined, the more must it be admired. For in it are practically solved, by an instinct which can only be referred to the infinite wisdom of the Creator, some problems difficult to human science, particularly in the combination of the greatest economy of materials and of space with the most perfect convenience and the greatest strength. It appears even at a glance, that the cells are hexagonal or six-sided, the hexagons perfectly regular, and in this way there are no interstices between the cells. Now, the mathematician knows that there are only three regular figures, that is figures of which all the sides and angles are equal, bounded by straight lines, with which a space can be perfectly filled up in this way—the equilateral triangle, the square, and the hexagon; and of these the hexagon is at once the most suitable for the larva of the B. in its form, and the strongest in its nearest approach to the circle. The circular form itself would have left large interstices. But this is not all: the same wisdom which has given the solitary bees, already noticed, their instinct to surround their nest with a cottony substance, which serves as a non-conductor of heat, has directed the hive B. to the constant adoption of a mode of constructing its combs, which adds greatly to the strength that they would have

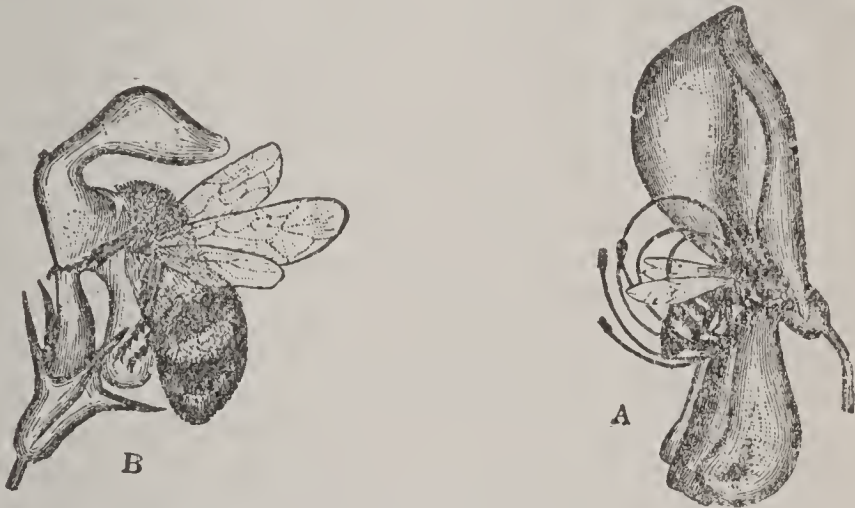


Pyramidal bottoms
of Cells.

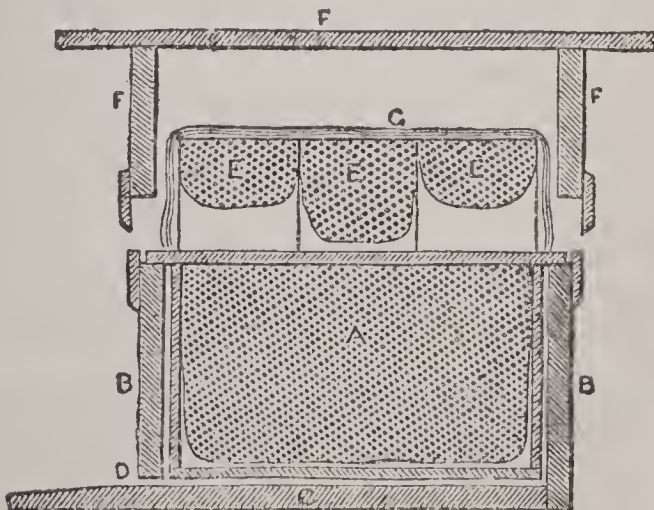
possessed with the same amount of materials, if the cells had been merely regular hexagonal prisms, and the partition in the middle of the comb, between the cells of the one side of it and those of the other, therefore a simple plane. It is so far from being so, that when carefully examined it appears, if the expression may be used, the most ingenious part of the whole structure. It is composed of a multitude of little rhombs, or four-sided figures, with equal and parallel sides, and two obtuse and two acute angles, the obtuse angles being invariably angles of $109^{\circ} 28'$, and the acute angles of $70^{\circ} 32'$, agreeing precisely with the results of mathematical analysis, applied to the difficult question of the form of



Hind-leg of Honey-Bee, A; of Humble-bee (*Bombus lapidarius*).



A, Honey-bee on broom-flower; B, Wild-bee on white dead-nettle.



Bee.—Section of Bar-frame Hive: A, Bar-frame with comb; B, Walls of hive; C, Floor-board; D, Doorway; E, Sectional super; F, Cover of hive; G, Quilt.

the facets of a three-sided pyramid, which should terminate a six-sided prism, so as to combine the greatest economy of materials with the greatest strength. On looking at a piece of empty honeycomb, placed between the eye and the light, we readily perceive that the cells are not opposite to each other, cell to cell; but that the point of meeting of three sides of three cells, on one side, is opposite to the centre of a cell on the other side—a circumstance which of itself we cannot but regard as calculated greatly to increase the strength of the whole fabric. It follows also from this, that the terminating pyramids of the cells on the one side do not interfere with the form of the cells on the other side, but the three rhombic facets, which terminate each cell, belong likewise to three distinct cells on the opposite side of the comb.

The only departure from perfect regularity in the form of the cells is in the transition from the smaller or workers' cells to the larger or drones' cells, which, when it takes place, is managed with great simplicity and beauty of contrivance.

The material of which the cells are built is chiefly wax (q.v.) produced by the bees, which, at first white, becomes brownish-yellow with age, and in very old combs almost black. Although wax exists as a vegetable product, yet bees-wax is now known to be produced by a chemistry carried on in the bodies of bees; and it has been found that they produce wax and build combs when supplied only with honey or saccharine substances. The *wax-pockets* in the abdomen of working-bees have been already referred to. The bees which are about to proceed to wax-making suspend themselves in clusters in the hive, attaching themselves to each other by means of hooks with which their feet are provided; and while they remain motionless in this position, the wax appears to be formed, in small scales, which they afterwards take in their mouths and curiously work up with a secretion from the mouth itself, passing the wax, in the form of a minute riband, through the mouth, first in one direction and then in the opposite one, and finally depositing it in its proper place for the foundation of the comb. One B. always begins the comb alone; the rest, in gradually increasing numbers, proceed in accordance with what has been already done. The bees which elaborate and deposit the wax do not, however, construct the cells, which is done by others, partly at least by a process of excavation in the wax deposited. It is supposed by many naturalists that some of the working-bees are exclusively wax-workers, some nurses, etc.; but others think that there is only one class of working-bees, all ready for any kind of work according to circumstances.

But wax, although the chief, is not the only material of the combs. *Propolis* (q.v.) is also employed in small bands to give greater strength to the cells, the mouths of which are surrounded with it, and made thicker than their walls. This substance, obtained by bees from the viscid buds of trees, is employed also for more firmly attaching the combs

to the hive, for closing up apertures in the hive, for covering up obnoxious substances, intruding slugs, etc., which are too large to be removed, and for a variety of similar purposes.

It has been already stated that queen-bees are hatched and reared in cells different from the rest. They are, indeed, very different, being vertical and not horizontal in their position—not hexagonal, but rather oval in form—and much larger than the other cells, even in proportion to the size of the animal that is to inhabit them: they are generally placed on the edge of a comb, and when they have served their purpose, are partially removed, so that during winter they resemble acorn-cups in appearance.

Two queens cannot exist in the community together. There is implanted in them the most deadly rivalry; and the mother-bee, if permitted, would even tear open every queen cell of which the inmate has nearly approached maturity, and inflict death by her sting. One of those wonderful instincts, however, with which bees are endowed, counteracts this at those times when, upon account of the increased numbers of the community, and in order to the formation of new colonies, it is requisite that it should be counteracted. The workers throng around the queen, hem her in, and prevent the execution of her purpose. The cell of the young queen also is carefully guarded, and she is not permitted to leave it. At such times peculiar sounds, produced probably by the action of the wings, are emitted both by the actual queen under restraint in her movements, and by the young one in the cell, which may be heard by an ear applied to the outside of the hive, and are familiar to B. cultivators as one of the surest signs of swarming. The queen now becomes restless; her agitation communicates itself to those around her, and extends through the hive; the ordinary work of the community is in great part neglected; fewer bees than usual are seen to leave or return to the hive; and at last the queen-bee rushes forth, preceded and followed by crowds which press and throng upon each other, form a buzzing cloud in the air, and very generally settle upon a bush in the neighborhood, where they soon congregate closely together, hanging by their claws in a dense cluster. Sometimes they rise up in the air, and fly off at once to a considerable distance, apparently to some previously selected place in the thick top of a tree—in the chimney or roof of a house, where they happen to find an aperture—or in some such situation. More frequently, they settle not far from the hive which they have left, often on some very humble plant, or even on the grass, and soon rise again. It is the care of the cultivator to prevent this by providing them immediately with a suitable habitation in a new hive, invitingly placed above them, or into which he puts the swarm after they have congregated closely together as above described. It sometimes happens that bees hurry out of their hive without their queen, in which case they do not in general congregate so closely together where they settle, and soon return to the hive again. Swarming generally takes place in a fine day; and when the bees seem on

the very point of *coming off*, a cloud passing over the sun is enough to retard it. Bad weather occasionally not only retards but prevents it, the young queens being at last killed in their cells.—When the first swarm of the season has left the hive with the old queen, as is usually, if not always, the case, the imprisoned young queen is set at liberty; and if the B. community is a large and prosperous one, other young queens also come forth from their cells, and leave the hive with successive swarms, the number of which depends upon the climate, the season, etc. It is not uncommon for a bee hive to send off three swarms in a summer, the first being almost always the largest, and not unfrequently itself sending off a swarm before the season is over.

Bees left without a queen, and with no means of supplying the want, appear to feel themselves cut off from the very purpose of their existence; the labors of the community are relinquished, and its members are dispersed and die. It has already, however, been stated, that bees left without a queen can provide themselves with one, by transforming and enlarging a worker's cell which contains an egg or very young larva. This process is sometimes carried on as if by several distinct parties, in different parts of the hive at once; and as if aware that time will be gained, the bees generally prefer cells containing larvæ of two or three days old to those containing eggs.

Bees become partially torpid during cold weather, consuming much less food than they would otherwise require. They are readily aroused from this state, however, as may at any time be proved by tapping on a bee-hive, when it will be found that the temperature of the interior of the hive rises rapidly. Respiration is considerably lessened in the state of partial torpidity, and the temperature rises when it is resumed. The respiration of bees takes place by air-tubes or *tracheæ* (see INSECTS), and is very active when the insect is in a state of activity. The respiratory movements are easily seen in looking at a bee. The consumption of oxygen by this process might be expected soon to reduce the atmosphere within a hive to a state in which it could no longer support animal life; but in summer, when respiration is active and the hive populous, a constant circulation of air is maintained by the insects themselves, some of which are employed in a rapid vibration of their wings for this purpose. A greater or smaller number of them, according to circumstances, may frequently be seen thus engaged in fanning the air at the mouth of a bee-hive.

It is extraordinary that among the enemies of bees are certain species of moths, which, notwithstanding the danger of the stings of the bees, enter the hives and deposit their eggs. After the eggs are hatched, the larvæ feed upon the combs. Mice sometimes eat their way into the hives in winter, and destroy and plunder unmolested.

Bees are sometimes very destructive to each other in their combats, as when one B. community is assailed by others for the purpose of plunder. To this the weaker communities are liable, particularly when flowers are few, and bees are awakened to full activity in the warm days of early

spring. The narrower the entrances of bee-hives are at this season, at least of the less populous hives, the less likely is the B. owner to suffer loss from this cause, as the narrow entrance is more easily defended even against very numerous invaders.

Management of Bees.—Unless the natural surroundings are unusually favorable, the apiary (see APIARY) should be protected from the n. and w. winds by a tight board fence. It is desirable also that the yard should be inclosed, to prevent disturbance of the bees by stray animals or other intruders. But the hives should not be placed in contact with a fence, as this would interfere with the work of properly caring for the bees, and expose them to the attacks of various enemies. Each hive should be on a platform 4 or 5 inches from the ground; and, in order to gain the benefit of the morning sun, the openings should be toward the east. To prevent the growth of weeds and grass, the ground should be well covered with sand; and a board should lead to the entrance, so that heavily laden or exhausted bees alighting on the sand may be able to reach the hive. Hives should be 3 to 8 ft. apart, and a screen of vines or shrubs on the s. is desirable, to modify the extreme heat of summer. A constant supply of pure water should be provided; and bits of shingles or boards should be placed as floats, to keep the bees from drowning. Though bees can fly several miles, the expenditure of time and effort required to cover long distances should be avoided, by furnishing in the immediate vicinity sources from which honey may be obtained. The ancient Persians, Greeks, and Romans moved their bees from one spot to another, in search of better pastures; and, to some extent, the practice is followed in the present day. In Egypt, large numbers of bees are kept on boats, which move along the Nile, to take advantage of the flowering season at different points; and there are owners of large flat-boats who take a stock of bees and ascend the Mississippi river as the buckwheat-fields come into blossom, and the wild flowers of the south are succeeded by those of the cooler region. In Scotland, France, and Italy, bee-keepers sometimes move their stocks from one point to another, for fresher pastures. A far better course is to grow honey-producing plants and trees on the farms where the apiaries are located. Among the best plants for this purpose are the white, alsike, and sweet clovers, alfalfa, mignonette, rose, catnip, and sunflower. The maple, locust, and linden, among ornamental trees, and the various fruit-trees, vines, and bushes, are prolific sources of honey. The red clover yields excellent honey, but, on account of the length of its blossoms, cannot be utilized by the common bee; though it is said to be available to the Italian variety. Buckwheat is largely grown by bee-keepers, and, if different sowings are made, will furnish pasturage from the middle of July till the autumn frosts. The flavor and color of honey vary with the nature of the plants from

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which it is made. That from buckwheat is of darker shade, though by many considered fully equal in quality to that from white clover. In order to prevent admixture of the different kinds, it is customary to remove the surplus frames or boxes of honey before the buckwheat season opens. In addition to the ordinary domestic black or German bee—native of the old world, but now common in nearly all parts of this country—the principal varieties kept in the United States are the Italian, Cyprian, and Syrian. The Italian, probably the most desirable, was introduced into this country about 1861. It works more hours a day than the common bee; has a longer proboscis, which enables it to obtain honey from flowers useless to some varieties; and, though easily handled by the owner, defends itself vigorously from its enemies. The pure Italian is easily distinguished from the common bee by 3 yellow bands around the base of the abdomen. The Cyprian and Syrian are vigorous bees, resembling the Italian in appearance, noted especially for late fall breeding and a decidedly vicious disposition.

Hives were formerly mere boxes, from which there was no way of removing the honey except by suffocating the bees. The business of bee-keeping was practically revolutionized by the invention 1851 of the movable frame hive by the Rev. L. L. Langstroth. Other hives, embodying the main principle of the Langstroth, have been invented; and the bee-keeper is enabled to keep his colonies clean and healthful, protect them from moisture and sudden variations of temperature, and secure the surplus honey without injury to the bees. Eight or more frames, in each of which a comb can be made, are placed in each hive, and either of the frames can be taken out at any time. In a common form of hive, the walls are double; and the space between them is filled with chaff, to absorb the moisture formed in the hive. Where many bees are kept, a bee-smoker will be needed. By the use of this simple implement, the most vicious bees can be quickly subdued, so the owner can handle them at will. An extractor, which removes the honey without injury to the comb, and allows the latter to be refilled by the bees, enables the owner to obtain the honey in the purest condition, and, by preventing the necessity of making new comb, largely increases the quantity of honey produced. A bee-feeder, a knife for uncapping the combs, a veil to protect the face, and gloves for the hands of the bee-keeper, also will be required. A machine for making comb foundation will be needed in a large apiary; but where only a few bees are kept, the quantity required can be purchased for a small sum. When the hives are well filled, usually toward the last of May in the n. states, the bees will swarm. If the colony is strong, a second swarm will follow in about 8 days, and a third may follow 3 or 4 days later. One of the best methods of hiving swarms is by carrying among the bees an open box fastened on a pole,

They will probably enter the box, from which they can easily be induced to enter the hive. If the bees alight on a bush or tree, they can be secured in the same manner. The person handling the bees must be quiet and careful, and be protected by a veil and gloves. Under certain circumstances, artificial swarming is practiced with benefit. Artificial feeding with a syrup made of pure granulated sugar and water will stimulate the bees to early and active work in the spring, and it is sometimes beneficial between the periods at which the different classes of flowers are in full bloom. Before attempting to remove the honey, a little smoke should be blown into the hive. This will cause the bees to begin feeding, and in a few minutes they will become quiet, and the work can be safely performed. Where the cold is not severe, double-walled hives packed with chaff will be sufficiently warm to keep through winter strong colonies which have plenty of food; but at the n., some form of protection will be required. Protection will save food and cause the production of young bees, which will become strong workers early in the season. It may be afforded in cellars or in bee-houses, which should be dry and dark, with facilities for ventilation and controlling the temperature, which should be kept at 40° to 45°. The hives should be moved to winter quarters before the weather becomes very cold, and when they are perfectly dry. A strong colony of bees will need 30 to 40 lbs. of honey during the winter.—Among the enemies from which bees suffer are several varieties of birds, ants, mice, and the bee-moth, latter far the worst. By the use of improved hives, keeping the colonies strong, and simple expedients for trapping the moths, these enemies can be prevented from doing much damage. The principal diseases to which bees are exposed are dysentery and foul brood. The former is caused usually by dampness, want of pure air, or other improper conditions. Foul brood is a fatal and contagious disease affecting the brood in the cells. All affected comb should be promptly destroyed, and the hives cleansed with boiling water, followed by a strong solution of borax and salicylic acid.—Wild bees are the property of the man on whose land they are found; but a swarm of domestic bees which is followed or can be identified by the owner of the original colony can be claimed wherever they may alight. Until the invention of movable frame hives, bee-keeping was a precarious business; but this improvement, the introduction of numerous appliances for facilitating the work, and the diffusion of information, through books and papers, concerning the habits of the bee and methods of management, have made it reasonably safe, and under favorable conditions it is very profitable.

BEE, HUMBLE: see HUMBLE-BEE.

BEECH.

BEECH, n. *bēch* [AS. *becc*: Ger. *buche*: Icel. *beyki*: L. *fagus*]: a large forest-tree having a smooth bark, producing mast or nuts; the *Fagus sylvatica*, ord. *Cupulifera* or *Corylaceæ*. **BEECH-MAST**, the nuts of the beech-tree. **BEECH-OIL**, an oil obtained from beech-nuts. **BEECH-OWL**, the Tawny Owl, *Syrnium stridula*. **BEECH-WHEAT**, a plant, *Polygonum fagopyrum*. **BEECHEN**, a. *bēch'en*, made of beech. **BEECH Y**, full of beech; consisting of beech.

BEECH (*Fagus*): genus of trees of the nat. ord. *Cupulifera* (q.v.). The male catkins are almost globose, stalked, their flowers consisting of a bell-shaped 5-6-cleft perianth



Common Beech.

and 8-15 stamens. The female flowers, which grow on the same trees, consist chiefly of a germen with three awl-shaped styles, and are situated two or rarely three together within a stalked involucre, which bears on its outer surface many fleshy threads. This involucre, after the flowering is over, closes and forms a husk resembling a sort of capsule, which when ripe opens in four valves, is externally covered with soft spines, and encloses one or two (rarely three) triangular nuts, which bear the name of *Beechmast*.—The species are not numerous; all of them are forest-trees of great beauty.—The **COMMON B.** (*F. sylvatica*) forms whole forests in many parts of Europe. It grows to a height of 100-120 ft., and a diameter of 4 ft.; and particularly when standing alone becomes a very ornamental tree with far-spreading branches, which often droop gracefully almost to the ground. It has thin, ovate, obscurely toothed leaves, finely ciliated on their margins. Its bark is smooth, often of a

BEECH.

whitish color; and it is remarkable for the frequency with which hard wooden knobs—abortive branches—occur in its bark. Grass does not grow readily under the shade of the B., but in B. woods may sometimes be found rare plants almost peculiar to such situations. The B. thrives best in light soils, and does not send its roots deep into the ground, but rather horizontally under the surface. The wood is more or less of a reddish-brown color, as the tree has grown in a dense forest, or has been freely exposed to sun and air. It is very hard and solid, but brittle; and when exposed to the open air, very liable to rot and to be eaten by worms. It is therefore not adapted to the purposes of the house-carpenter; but when kept always under water, it is very durable, and is accordingly employed in the erection of mills, and for weirs, sluices, etc. It is also employed for many purposes by cabinet-makers and turners. It is very much used in France for making the *sabots* or wooden shoes of the peasantry, being preferred for this purpose to every other wood except walnut, on account of its property of not absorbing water. It is one of the best kinds of firewood.



Common Beech.

a, part of a branchlet with leaves and catkins, reduced; **b**, a single male flower; **c**, a single female flower.

Its ashes yield much potash and of excellent quality. The raspings of the wood are used in the preparation of vinegar. See VINEGAR and PYROLIGNEOUS ACID. The bark is sometimes employed for tanning when oak-bark is scarce. The B. bears lopping well, and is often planted for hedges; and it is a curious fact, that when it is prevented from attaining a tree-like size, and is kept closely pruned, the withered leaves remain on the branches all winter, which is not the case in other circumstances. In some countries, as Dauphiny and Switzerland, the leaves of the B. are collected in autumn before they have been much frost-bitten, and are used for making beds or mattresses.—Beechmast, when fresh, has a sweet taste, like that of a walnut. It contains in large quantity a bland fixed oil, along with a starchy farina, a little sugar, and an astringent substance. A vola-

BEECH-DROPS.

tile, narcotic, poisonous principle, called *Fagine*, is also found in it, but more in the rind than in the kernel; and when not only the smooth leathery outer rind, but also the thin brown inner pellicle, has been removed, it is wholesome food. It is, however, more generally used for feeding swine, poultry, etc., and is much employed in France and other parts of Europe for the manufacture of *Beech Oil*, which, when expressed without the application of heat, and well clarified, has an agreeable taste, is fit for use as food, and keeps long without becoming rancid. When less pure, it is used for lamps and in the arts. The oil-cake which remains is good food for poultry, for swine, and even for oxen, but is injurious to horses. Many manufacturers of cocoa adulterate it with beechmast, first depriving the cocoa of its oil, which they sell separately as cocoa-butter, and trusting to the oil of the B. for supplying its place.—The B. is not, in general, found in Europe n. of lat. 59°, although it occurs two degrees further n. in the Scandinavian peninsula. It is found in the temperate parts of Asia.

The so-called Red B. of N. America is regarded now as only a variety of the American B. (*F. ferruginea*), with 'softer wood.' There are a number of fine cultivated varieties, the purple, the silver, etc. *F. ferruginea* is distinguished from the European B. by longer, thinner, less shining leaves, which are oblong-ovate, tapering to a point with straight veins running to the coarse teeth; the bark, light gray and unbroken. It forms extensive forests in the northeast states and the adjoining British possessions, and extends south along the Alleghanies. The wood is of reddish or rusty color and is valuable.—Two species of B. are found on the mountains of Java; four are natives of the more elevated parts of the s. of New Zealand; several belong to the s. of S. America. The genus is, in fact, more characteristic of the colder latitudes of the s. than of the n. hemisphere. *F. betuloides* (also known as *F. Forsteri*) is the 'myrtle-tree' of the mountains of Tasmania—a very large tree with evergreen leathery leaves, in form much resembling those of the birch, although the general habit of the tree agrees with that of other beeches. The same species is the evergreen B. of Terra del Fuego, where it forms forests of which the dark green foliage contrasts strikingly in winter with the dazzling snow. The wood is too heavy and brittle for masts, but makes tolerable planks, and is carried to the treeless Falkland Islands for roofing houses. *F. Antarctica* grows farther up the mountains about the Strait of Magellan. It has deciduous leaves, and much resembles the common B.—*F. procera* grows in the Andes of Chili, and attains a majestic size. It is a valuable timber-tree.

BEECH-DROPS: see CANCER ROOT.

BEECHER.

BEECHER, CATHERINE ESTHER: 1800, Sept. 6--1878, May 12; b. East Hampton, N. Y.; dau. of Lyman B. She was educated at a seminary in Litchfield, Ct., and at the death of her mother, while Catherine was still a young girl, was obliged to take charge of the family. Later she was engaged to Prof. Fisher, of Yale College, who was lost at sea. Her father having married again, she opened a school for young ladies, 1822, in Hartford, Ct. which she continued for 10 years, assisted for a part of the time by her sister Harriet, afterwards Mrs. Stowe. While thus occupied Miss Beecher also prepared elementary text-books for scholars.

In 1832, she went to Cincinnati with her father, and there opened a seminary for young women, which she discontinued at the end of two years on account of her health. From this time forward she devoted herself to plans for the education and advancement of women; in this pursuit traveling widely, particularly in the West and South. During the latter part of her life, Miss Beecher suffered greatly from physical disability. She died at Elmira, N. Y. Her published works comprise the following: *Letters on the Difficulties of Religion* (1836); *The Moral Instructor* (1838); *Treatise on Domestic Economy* (1842); *Housekeeper's Receipt Book* (1845); *Duty of American Women to their Country* (1845); *True Remedy for the Wrongs of Women, with a History of an Enterprise having that for its Object* (1851); *Letters to the People on Health and Happiness* (1855); *Common Sense applied to Religion* (1857); *An Appeal to the People as the Authorized Interpreters of the Bible* (1860); *Religious Training of Children in the School, the Family, and the Church* (1864); *Woman's Profession as Mother and Educator, with Views in Opposition to Woman Suffrage* (1871); and *Housekeeper and Healthkeeper* (1873). Associated with her sister, Mrs. Harriet Beecher Stowe, Miss Beecher wrote the following: *The American Woman's Home* (1869); *Principles of Domestic Science, as applied to the Duties and Pleasures of Home* (1870); *Domestic Receipt Book*; *Memoirs of George Beecher* (1844); and *Truth Stranger than Fiction* (1850); all these being apart from her general educational purposes.

BEECHER.

BEECHER, *bēch'ēr*, CHARLES: clergyman: b. Litchfield, Conn., 1815, Oct. 7; son of Lyman B. He studied at the Latin School, Boston, and Lawrence Acad., Groton, Mass., graduating at Bowdoin 1834. He took a theol. course at Lane Seminary, O., and was ordained pastor of the Second Presb. Church, Fort Wayne, Ind., where he remained 1844-51. For the next four years he was stationed at Newark, N. J., and 1857-81 at Georgetown, Mass., excepting 1870-77, when he resided in Florida. B. was author of: *The Incarnation, or Pictures of the Virgin and Her Son* (1849); *King David and His Throne* (1855); *Pen Pictures of the Bible* (1855); *Autobiography and Correspondence of Lyman Beecher* (1863); *Redeemer and Redeemed* (1864); *Spiritual Manifestations* (1879); *Eden Tableau* (1880). He selected the music for the *Plymouth Collection of Hymns and Tunes*. D. 1900.

BEECH'ER, EDWARD, D.D.: clergyman: b. East Hampton, N. Y., 1803, Aug. 27; son of Lyman B. After graduating at Yale, he studied theology at Andover and New Haven, became tutor in Yale 1825, and then took charge of the Park Street Church (Congl.), Boston, where he remained 1826-30. He was then elected pres. of Illinois College. He held this office till 1844, when he returned to Boston and became pastor of the Salem Street Congl. Church. From 1855-70 he was a Congl. pastor at Galesburg, Ill. He was for some years a prof. in the Chicago Theol. Sem. He finally retired from the ministry in 1872, and settled in Brooklyn. His works include: *Address on the Kingdom of God* (1827); *Six Sermons on the Nature, Importance, and Means of Eminent Holiness throughout the Church* (1835); *History of Alton Riots* (1837); *Statement of Anti-Slavery Principles, and Address to People of Illinois* (1837); *Baptism: Its Import and Modes* (1850); *Conflict of Ages* (1853); *Papal Conspiracy Exposed* (1855); *Concord of Ages* (1860); *History of Opinions on the Scriptural Doctrine of Future Retribution* (1878). He d. 1895, June 28.

BEECH'ER, HARRIET ELIZABETH: see STOWE, HARRIET ELIZABETH (BEECHER).

BEECHER, HENRY WARD: 1813, June 24-1887, Mar. 8; b. Litchfield, Ct.; son of Lyman B. He received an early training of a severe character, and it is related of him that when a boy he evinced a strong tendency towards a seafaring life, which he doubtless would have followed but that a religious 'revival' awakened in him impressions which turned his attention in another direction. His preparatory studies were at the Boston Latin School, and at Mount Pleasant Institute, Amherst, Mass., and he graduated at Amherst College, 1834, afterwards studying theology at Lane Seminary, where his father was president.

His first pastorate was in Lawrenceburg, Ind., 1837, during which he married Eunice White Bullard, dau. of Dr. Artemas Bullard. In 1839, he had a church in Indianapolis, and there remained till 1847, when he was called by the newly formed Plymouth Church (Congl.), Brooklyn, N. Y., with which he was identified for the remainder of his life.

From the beginning of his experience as a pastor, Mr. B. became renowned as an orator, and his reputation in this regard soon spread over the entire country. This was owing partly to his departure from the usual conventionalities of pulpit oratory, using humor, sarcasm, and irony to illustrate or strengthen his discourses whenever such aids seemed to him desirable. An exceedingly close observer of human nature, he was apt and picturesque at characterization, his sermons thus becoming exceedingly dramatic; their reputation for this quality in fact awakened such general interest as to draw crowds of the strangers visiting New York and Brooklyn on every Sunday through all the years of his preaching.

Originally liberal in his ideas, this tendency grew upon him, until towards the latter part of his life he had departed in many particulars from the extreme orthodox belief even of the more liberal Congregational churches. So wide did this departure become that in 1878 he renounced belief in the doctrine of eternal punishment as commonly held; and in 1882, from a wish not to cause his brother ministers to be held responsible for his views, he withdrew from the Association of Congl. Ministers. His church, however, though heartily conceding to him his liberty on this and other points, and declaring his preaching still most spiritual, evangelical, and edifying, did not change its own creed, nor leave the fellowship of Congl. churches.

For more than a quarter of a century, Mr. B., renowned as perhaps the foremost of living preachers, was known in America and Great Britain in many other departments. No great question of public interest arose during his career in which he did not take sides one way or another. As a platform orator and lecturer his career was remarkable, while the topics of his discourses covered every feature of public life.

On the formation of the republican party in 1856, Mr. B. became one of its first members, and from that time forward he addressed political meetings whenever any grave question was before the country. Yet, although a republican, during the exciting presidential canvass of 1884 he supported Grover Cleveland, and by this course lost many friends and admirers. He worked in the anti-slavery cause from the beginning of the period when it assumed prominence as a political issue. The outbreak of the rebellion found him firm on the side of the Union; and in 1863 he did extraordinary service in visiting Great Britain, where he made public addresses to large and frequently adverse audiences, endeavoring to state the cause at issue in the United States fairly before the English people, and to disabuse the public mind of the wrong views which had taken possession of them. During the course of these speeches in England he was frequently met by violent antagonism in his audiences, on which occasions he showed such sagacity, tact, and readiness, with such nerve and personal courage, as, with his unsurpassed eloquence, excited the admiration even of those most opposed to him, and won friends by scores of thousands to the side of the Union. In 1865, April, on the

occasion of the anniversary of the fall of Fort Sumter, Mr. B., by request of the U. S. govt., delivered an oration at the fort.

The generally popular flow of Mr. B.'s life was disturbed in 1874 by the outbreak of what is known as the 'Beecher Scandal.' Charges were made against Mr. B. by Theodore Tilton of improper intimacy with the latter's wife. This accusation aroused a tremendous feeling throughout the United States and abroad, wherever Mr. B.'s great reputation had established itself; and while the subject was made a matter of general discussion and consideration, a committee of Plymouth Church was charged with investigating the complaint. They reported the accusation to be baseless. This conclusion, however, did not end the matter, for Mr. Tilton began a civil suit for damages against Mr. B., and the case was tried in Brooklyn, the trial occupying six months, and the jury at its close failing to agree. The verdict stood three for the plaintiff and nine for the defendant, the charge being therefore returned 'not proven.' Through the whole painful discussion Mr. B. bore himself with an unchanging gentleness: indeed, his nature, always so fiery against injury to others, seemed incapable of malice, and slow to anger in his own behalf.

While this scandal and its discussion undoubtedly affected Mr. B.'s reputation in the minds of many of his former friends, it is doubtful if it interfered with his general popularity, or caused any general withdrawal of public confidence from him. His church was as much crowded during the last ten years of his life as before, while he continued to be in such demand in the lecture-field that even his high charge of \$500 or \$1,000 a night did not prevent him from receiving more offers of engagements than he possibly could fill. But although, between the large salary paid him by his church, and his enormous receipts from lecturing and writing, Mr. B.'s income was very large, he never accumulated a fortune. His manner of living was far from being extravagant, but he possessed little business capacity, and was at no period of his life in a state of undisturbed affluence. His residence in Brooklyn was plain, and his mode of living inexpensive, but he had a handsome country-seat at Peekskill-on-the-Hudson, where he laid out a large amount of money. He was fond of fine pictures and books, and was an expert in gardening and tree-culture.

Mr. B.'s literary life was no less comprehensive and effective than either his religious or his political career. As early as 1836, he was an editor, having charge of a religious weekly, *The Cincinnati Journal*; and during his pastorate in Indianapolis he was editor of an agricultural paper, *The Farmer and Gardener*. He was one of the founders of the *Independent* (New York), to which he was for 20 years a regular contributor, and 1861-63 its editor. From 1870 to 1878, he was editor of the *New York Christian Union*. At one time he contributed a series of papers to the *New York Ledger* under a special and very favorable contract with Robert Bonner, the proprietor. All of these different papers and contributions, as well as his sermons, were from

time to time published in book form, and had an immense circulation.

Among his published works are: *Lectures to Young Men on Various Important Subjects* (1844); *Freedom and War: Discourses Suggested by the Times* (1863); *Aids to Prayer* (1864); *Eyes and Ears* (1864); *Norwood, or Village Life in New England*, a novel (1867); *Overture of Angels* (1869); *Life of Jesus, the Christ: Earlier Scenes* (1871); *Lecture Room Talks: a Series of Familiar Discourses on Themes of Christian Experience* (1870); *Yale Lectures on Preaching* (3 vols., 1872-74); *A Summer Parish: Sermons and Morning Services of Prayer* (1874); and *Evolution and Religion* (1885). His addresses, sermons, and miscellaneous works include also: *Army of the Republic* (1878); *The Strike and its Lessons* (1878); *Doctrinal Beliefs and Unbeliefs* (1883); *Commemorative Discourse on Wendell Phillips* (1884); *A Circuit of the Continent* (1884); and *Letter to the Soldiers and Sailors* (1866, reprinted with introduction, 1884). He also edited the *Plymouth Collection of Hymns and Tunes* (1855), and *Revival Hymns* (1858).

Besides the works published in book form in his own name, there have been numerous collections and compilations made by different persons from his sermons, speeches, addresses, and books, including the following: *Life Thoughts* (1859), by Edna Dean Proctor; *Notes from Plymouth Pulpit* (1859), by Augusta Moore; *Pulpit Pungencies* (1866); *Royal Truths* (1866); *Prayers from Plymouth Pulpit* (1867); *Sermons by Henry Ward Beecher, selected from Published and Unpublished Discourses*, edited by Lyman Abbott, 2 vols. (1868); *Morning and Evening Devotional Exercises*, edited by Lyman Abbott (1870); and *Comforting Thoughts*, by Irene Ovington (1884).

The first volume of Mr. B.'s *Life of Christ* having been published 1871, he had at the time of his decease completed the second and concluding volume, which was published 1891. His biography was written by Lyman Abbott (published 1883), and a new life, written by his son, William C. B., and his son-in-law, the Rev. Samuel Scoville, (1888) includes an unfinished autobiography.

Mr. B.'s remains were interred in Greenwood Cemetery, and a public subscription for a monument was at once begun and liberally sustained.

BEECHER, LYMAN, D.D.: 1775, Apr. 2—1863, Jan. 10; b. New Haven, Ct.; son of David B., a blacksmith, descended from English ancestors who emigrated to New England, settling in New Haven in 1638. Lyman lost his mother while he was an infant, and was adopted by an uncle, and trained in blacksmithing and farming. Developing a marked taste for study, he was placed in the charge of the Rev. Thomas Bray, by whom he was fitted for college, and entered Yale at the age of 18, taking his theological course under Pres. Dwight. He graduated 1797, and the following year was licensed to preach, and after supplying a pulpit at East Hampton, N. Y., was ordained 1799. He now married Roxanna Foote, who, to assist in their up-

port, opened a private school. He remained at East Hampton until 1810, when he became pastor of a Congl. church in Litchfield, Ct., where he continued for 16 years, obtaining in that time the reputation of being the leading clergyman of that denomination.

In 1826, Dr. B. became pastor of Hanover St. Church (Congl.), Boston, but in 1832 resigned from this to accept the presidency of Lane Seminary (Presb.), newly founded at Walnut Hills, near Cincinnati, O. Here he continued 20 years, in the mean time becoming an important actor in the movement for temperance, and in that against slavery.

In 1852, Dr. B. resigned from Lane Seminary, and settled in Boston. From this time his health deteriorated, and a few years later a stroke of paralysis nearly wrecked his mental powers. The last ten years of his life he lived in Brooklyn, N. Y., with his son, Henry Ward.

Dr. B. was possessed of great mental power, and though not deeply learned was eloquent and capable of producing an extraordinary and permanent impression upon those who heard him. He was gifted with a powerful will and great determination, and a wide human sympathy: His religious belief has been called moderate Calvinism. In 1835, he, as one of the 'New School' leaders, was tried by the Presb. Church on charges of heresy, but he was acquitted. The trial was the beginning of a theological controversy, which ended in dividing the Presbyterian Church.

Dr. B. received his degree of A.M. from Yale College, 1822, and that of D.D. from Middleboro College, 1818.

He wrote *Remedy for Duelling* (1809); *Plea for the West*; *Six Sermons on Temperance*; and *Sermons on Various Occasions* (1842); *Views in Theology*; *Scepticism*; *Lectures on Various Occasions*; and *Political Atheism*. A collection of the most important of his works was published in 3 vols., Boston, 1852.

Dr. B. was three times married, and had thirteen children, of whom his seven sons became Congregational ministers.

BEECHEY, бѣчѣ, FREDERICK WILLIAM: 1796, Feb. 17—1856; b. London; son of Sir William B. He entered the navy when he was ten years of age, and at the age of fifteen was in an engagement off the coast of Madagascar, in which three French frigates were captured. In 1818, he took part under Franklin in a scientific voyage of discovery to the north pole, of which the results were published by order of the Admiralty (1843). For the services he rendered with his pencil during this voyage, B. received a grant of £200 from parliament. In 1819, he was engaged in another Arctic expedition under Sir Edward Parry; and in 1821, rendered other important services to science by his exploration of part of the n. coast of Africa, of which the results were published 1828. After being appointed commander, Captain B., 1825, received a commission to proceed by the Pacific Ocean and Behring's Strait to the Polar Sea, in order to communicate, if possible, with Franklin, who was to make the journey overland from N. America. The explorers did not meet, although at one time they were within 150 m. of

each other. He returned 1828, having been two years and a half away, and in 1831 published a narrative of his voyage, and afterwards an account of the botany and zoology of the Arctic regions. Port Clarence and Port Grantley, to the s.e. of Cape Prince of Wales, were discovered by B., 1827. He was afterwards engaged in surveying the coast of Ireland and of S. America; and was made Rear-admiral of the Blue, 1854.

BEECHEY, *bē'chī*, Sir WILLIAM, R.A.: 1753, Dec. 12—1839, Jan.; b. Burford, Oxfordshire: English portrait-painter. He entered the Royal Acad. as a pupil, 1772, and in 1793 he was chosen portrait-painter to Queen Charlotte, of whom he painted a full-length. In the same year he was elected an associate of the Royal Acad.; and in 1798, he received the honor of knighthood, and was made a Royal Academician for his picture of the Review of the 3d and 10th Dragoons in Hyde Park by George III. (accompanied by the Prince of Wales and Duke of York), which is reckoned B.'s greatest work. Most of the members of the royal family, as well as of the court nobility, sat to him for portraits. Among his portraits are those of Lord Nelson (preserved in the Clothier's Hall, London), Sir William Hamilton, Lord St. Vincent (in Fishmonger's Hall), Lord Cornwallis, John Kemble, and Mrs Siddons. Though B. is not a portrait-painter of first rank, his portraits are characterized by easy attitude and naturalness of expression. He d. at Hampstead.

BEE DER: cap. of the dist. of B. in the Nizam's dominions; about 75 m. n.w. of Hyderabad; near the right bank of a tributary of the Godavery; occupying a table-land about 2,400 ft. above the sea, and about 100 ft. above the adjacent country. Though B. was formerly a place of grandeur and importance, it is now remarkable chiefly for its manufactures in a compound metal made of tin, copper, lead, and zinc.—Pop. of dist. of B. (also spelt *Bedar* and *Bidar*) about 800,000.

BEE-EATER (*Merops*): genus of birds of the order *Insector*es and tribe *Fissirostres*; type of a family, *Meropidae*, nearly allied to that of the Kingfishers. The birds of the B. family have rather long, slightly arched beaks, and long, pointed wings; they are mostly of a green color; resemble swallows in flight; and, like them, prey on insects, but chiefly on bees, wasps, and other hymenopterous insects. Their skin is very thick. The species of the genus *Merops* are numerous in Africa and Asia; none are known in America: two are European, one of which, the Common B. (*M. apiaster*), is common in the s. of Europe as a summer bird of passage. It is mentioned by Aristotle, under the name *Merops*, as very destructive to bees. It seizes them on the wing, and also often watches near their hives, and at the mouths of wasps' nests. It breeds in holes, which it excavates in the banks of rivers. 'When the young are partly fledged, but not yet fit to fly, they creep to the mouth of their holes, where they seem to enjoy the happy summer light and genial sunshine: but on the least alarm, they

trundle stern foremost into their inner chambers, where they lie concealed until tranquillity again prevails.' In the banks of the Don and Volga, the excavations made by the flocks of bee eaters are so numerous, that the bank in many places resembles a honeycomb. Livingstone describes the banks of the Leeba, in south Africa, as perforated in a similar manner. The Hottentots watch the flight of the bee-eaters, that they may be guided to the nests of bees.



Common Bee-eater (*Merops apiaster*).

BEEF, n. *bēf* [F. *bœuf*; OF. *boef*, an ox: It. *bove*—from L. *bovem*, an ox]: the flesh of animals of the ox, bull, or cow kind. **BEEVES**, *bēvz*, plu. of **BEEF** when the animals are meant: **ADJ.** consisting of beef. **BEEF-STEAK**, n. *-stāk*, a slice of beef raw or cooked. **BEEF-TEA**, a liquid decoction of beef. **BEEF-WOOD**, the wood of an Australian tree resembling beef in appearance; various species of the genus *Casuarina* (q.v.), ord. *Casuarinacæ*, yielding excellent timber; the cassowary-tree. **BEEF-WITTED**, having a heavy, ox-like intellect; dull of understanding; stupid.

BEEF: see **FOOD AND DRINK: DIET**.

BEEF-EATER [OF. *buffetier*—from *buffet*, a sideboard]: a term now applied jocularly to certain functionaries belonging to the Yeomen of the Guard (q.v.), who, ever since the time of Henry VII., have formed part of the train of royalty, attending the sovereign at royal banquets and other state occasions. They have maintained the same costume, with a slight alteration made in 1858, for nearly four centuries; and this costume has had much to do with their attractiveness to sight-seers. The word has of late been usually regarded as a corruption of *buffetier* [Fr.], or *beaufetier*, one who attends the *buffet* or sideboard. It would thus be an instance of what Latham calls 'words of foreign simulating a vernacular origin;' like *sparrow-grass* for

BEEF EATER—BEEHIVE-HOUSE.

aspa, agus, ancient for ensign. But Skeat holds that *beef-eater* is simply *eater of beef*, a servant or dependent, and quotes *eaters* (from Ben Jonson) and *powder-beef lubbers* used in a similar sense.

BEEF-EATER (*Buphaga*): genus of birds, of the order *Insectores*, tribe *Conirostres*, to which the name Ox-pecker is also and more correctly given. The beef-eaters have short bills, square at the base, and rather swollen towards the point. They are accustomed to sit upon the backs of buffaloes, camels, and other large animals, and to feed upon the larvæ of gadflies, which they find in their hides. They are exclusively African. One of the species is the Buffalo Bird of south Africa. Livingstone mentions that the sight of the bird being much more acute than that of the buffalo, it is much more easily alarmed by the approach of danger; but the buffaloes always begin to look about them when the birds rise from their backs.

BEEF-TEA: a light and pleasant article of diet, generally prepared by placing the beef (as lean as possible) in cold water, which is gradually heated, and then allowed to *immer* for two hours or so; but the best method appears to be to commence by chopping the meat small, adding the cold water, and rapidly heating so as to bring it to boil. A little salt is then added, to suit the taste. Either process, by commencing with cold water, succeeds in dissolving out of the meat the savory natural juices which it contains to the extent of about one-eighth of its weight. Occasionally, hard-toasted bread, in fragments, is added to the tea just before being partaken of, which imparts to it some of the nutritious qualities of the bread: in using the B., the bread may or may not be eaten. The popular notion that the B. contains all the nourishing constituents of the entire amount of meat employed in its preparation is erroneous, as much nutritious matter is resident in the seven-eighths of the original meat, left as residuary fleshy fibre, though the latter would be of difficult digestion. The chemical constituents of B. are *gelatine*; *albuminous matter*; *kreatine*, a substance resembling *theine*, the essential principle of tea and coffee; *extractive matters* (*osmazome*), to which the B. owes most of its odor and flavor, and a part of its nutritious qualities; *lactic acid*; *salts*; a *little fat*; *saccharine matter*, and *water*. B. is highly palatable, and from its very easy digestion, it is recommended to invalids and convalescents. Mutton, treated in a similar manner, yields a broth or tea not so easily digested, and hurtful to persons of weak stomach, especially if the fat be not skimmed off from the liquid. A knuckle of veal affords a similar broth or tea; but it is not so light as B., and, moreover, gelatinizes on cooling. A broth or tea prepared from a young chicken is, of all decoctions of animal matter, the most readily digested, and is specially suitable for invalids, where great irritability of the stomach exists. See MEAT EXTRACT.

BEEHIVE-HOUSE: name generally given to certain dome-shaped buildings in Ireland, believed to be among the oldest architectural remains in that country. They are

round edifices, of no great size or height, built without cement, of long thin stones arranged in horizontal layers, the one slightly overlapping the other, and so gradually converging until they meet at the top. The doorway, which is square-headed, is somewhat narrower at the top than at the bottom, as in Egyptian architecture. Beehive-houses are of two kinds—single or clustered. The former are generally found beside ancient oratories, and are supposed to have been the dwelling-places of the priests; the latter, often underground, show two or more hive-shaped chambers, connected by a passage or gallery, or opening from a larger central apartment, also hive-shaped. Irish antiquaries refer the beehive-houses generally to the period before the Anglo-Norman invasion of the island, in the 12th c., and claim for some of them an antiquity as high as the 7th and 8th c. Ruins of single beehive houses are found in the Western Isles of Scotland; and some of the ‘Picts’ houses,’ or ‘earth-houses,’ of the e. coast, seem to resemble the subterranean aggregated beehive-houses of Ireland.

BEEKITES, n. *bēk'its* [after Dr. *Beeke*, Dean of Bristol, by whom they were first publicly noticed]: a particular form of chalcedony deposited on fossils, as sponges, corals, or shells.

BEEKMAN, *bēk'man*, JAMES WILLIAM: publicist: 1815, Nov. 22—1877, June 15; b. New York: of Dutch ancestry, being a direct descendant of William B. who came to New Amsterdam with Peter Stuyvesant. B. graduated at Columbia Coll., New York, 1834, and studied law; but never practiced, having inherited large estates from his father and uncle. He was elected to the state senate 1850, and re-elected, and was prominent in public affairs during the early part of the civil war, uniting with Thurlow Weed and Erastus Corning 1861 in a mission to Washington to persuade Pres. Buchanan to order the relief of Fort Sumter. He was pres. or director of a number of N. Y. charities and other institutions.

BEELD, n, or BIELD, or BEILD, n. *bēld* [Icel. *byli*, a dwelling; *bylja*, to build: OE. *bylle*, to build]: in OE. and Scot., a place of shelter; the lee-side, as of a hill or wall; protection; refuge.

BEELZEBUB, n. *bē-ēl'zē-būb* [Gr.—from Heb. *baal*, lord; *zebub*, a fly—*lit.*, the god of flies]: name under which the people of Ekron, in Philistia, worshipped their god Baal (q.v.) or Bel. The Greeks also had their ‘Zeus Apomyios’ or ‘Myiagros’—‘the disperser of flies.’ As the heathen deities were all regarded as demons by the Jews, the name Beelzebub became, in course of time, commonly applied to the chief of evil spirits, and in this sense it is employed in the Gospels. The more correct reading of the word, as given by the Evangelists, is BEELZEBUL—an opprobrious change of name, making it signify ‘god of dung,’ to mark the low and grovelling character of the demon. See BAAL.

BEEN, *bēn* [AS. *beon*]: pp. of the verb *be*.

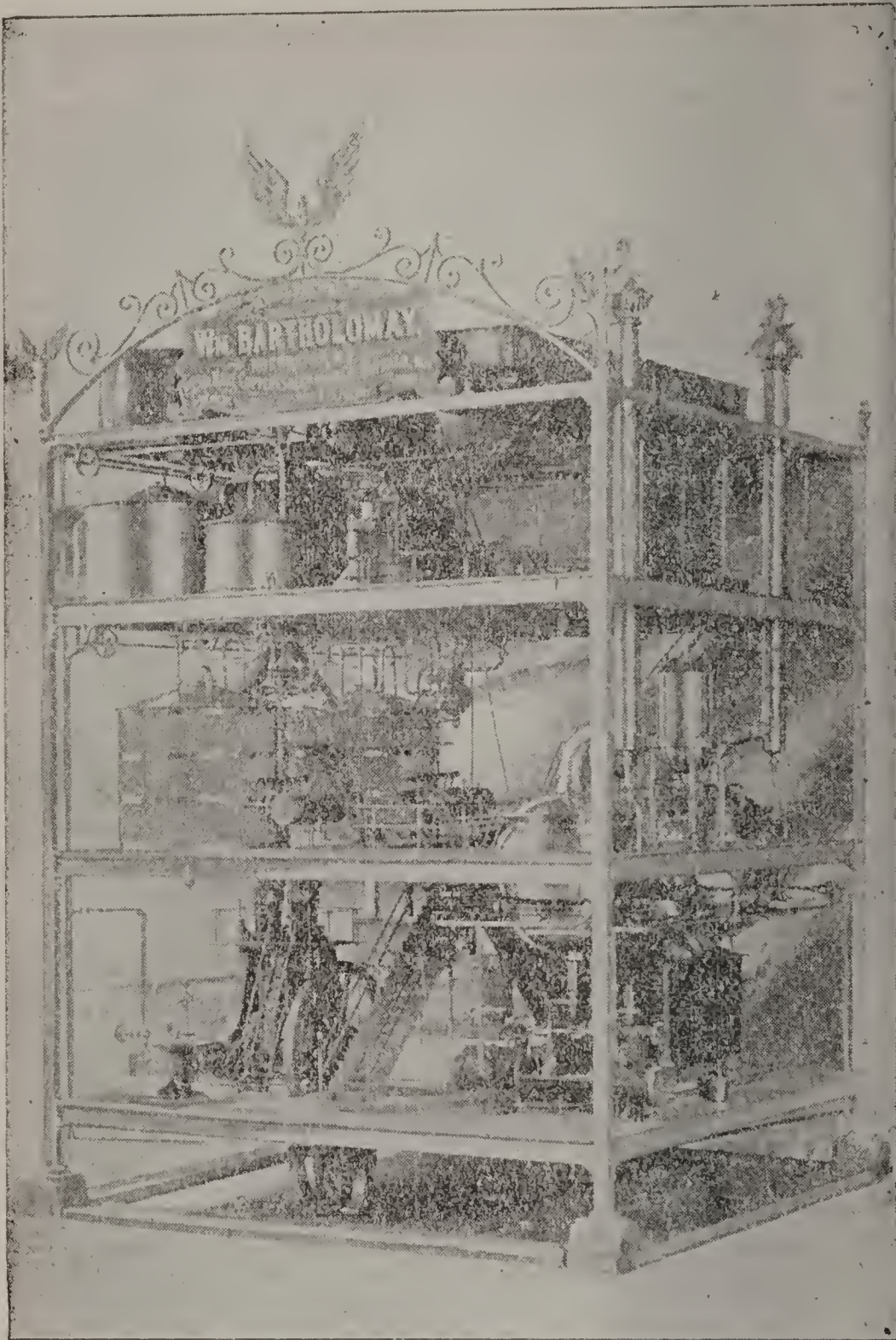
BEER, n. *bēr* [AS. *beor*; Ger. *bier*; F. *bière*, beer, drink; Gael. *bior*, water; may be connected with *bere*, barley]: an intoxicating liquor made from prepared barley, called malt, and hops; a liquor made by infusion and fermentation from any vegetable substance; term applied to a fermented liquid which has not undergone the process of distillation. The term *malting* is always associated with barley, although a few other vegetable substances have been substituted as a raw material. The manufacture of B. comprises two distinct processes—*malting* and *brewing*. These are often conducted as separate industries in different buildings or places. The process of malting necessarily precedes that of brewing. See BARLEY: MALT.

Malting.—This process, or the conversion of barley into malt, consists in: (1) steeping; (2) sweating; (3) germinating; (4) drying.

Steeping.—The barley is placed in large circular wooden or metal tubs, and just covered with water. It is then allowed to remain at a moderate temperature 30 to 70 hours, but usually not longer than two days. During this time the barley absorbs about all the water added, and increases from one-tenth to one-half of its own weight. When a grain of barley held lengthwise between the finger and thumb breaks into a pulpy or mealy mass, the purpose of steeping, i.e., the softening and hydration of the starch and softening of the albumen, has been accomplished. About 80 bu. of Canadian barley will increase in bulk by absorption of water in the steeping-tub to 100 bu. Any excess of water is then drawn from the steeping-tub, and the moist barley is then thrown into a heap, or 'couch.'

Sweating.—Another term for this portion of the process is 'couching.' This consists in simply allowing the moist barley to lie in a heap on the floor, usually of asphalt or cement, for the purpose of starting the germination or growth of the barley. It was formerly shoveled into couch-frames, but this requires more labor, and the grain is liable to pack and turn sour. The temperature begins to rise slowly, and after the barley has remained in a heap about 24 hours, the temperature has risen about 10°, and some of the water has been expelled. During this sweating process the germ of the barley begins to grow, and, taking its nourishment from the albumen, increases rapidly until its further growth is checked.

Germinating.—The moistened and steeped barley is then spread over an asphalt or cement floor, to a depth of 12 to 15 inches, and is rapidly turned from time to time, being spread over a larger surface and in thinner layers with each turning. The temperature is kept at 50° to 60° F. during this portion of the process, and the stem begins to grow under the husk, from the same end as the root, but appears at the opposite end of the grain, and is allowed to grow until the length of the sprout is one-half the length of the grain. This plumule or sprout would become a green leaf if allowed to grow; and maltsters differ as to its properly allowable length. Increased growth, beyond a certain point, means loss of starch with corresponding loss in weight,



Model of a Brewery exhibited at the Columbian Exposition.

Drying.—The barley, moistened and partly germinated, is thrown into a chamber called a kiln, which has a floor of woven wire, sheet iron, or perforated tile. The heat rising from below, and passing through the moist barley, rapidly dries it, and the moisture escapes through a lattice-like chimney in the roof of the malt-house, where it is often seen issuing like steam. The starch, hydrated by steeping and converted into sugar and dextrin by germination, is preserved in this condition by stopping further chemical action by drying it in a kiln at 125° to 180° F. The color of the beer depends largely upon the temperature of the kiln: the higher the temperature, the more complete is the change of starch into sugar, dextrin, and caramel, which impart the varying depth of color to beer, ale, and porter.

The chemical changes which occur in converting barley into malt are shown in the following table:

	Barley.	Malt.
Soluble albuminous compounds	1·258	1·985
Insoluble albuminous compounds.....	10·928	9·771
Husk.....	19·854	18·817
Dextrin ..	6·500	8·232
Fatty matter.....	3·556	3·379
Inorganic matter	2·421	2·291
Extractive matter	0·896	4·654
Starch.....	54·232	50·871
Loss.....	·305
	100·000	100·000

This is the method of malting as practiced universally until quite recently. Of late many improvements have been introduced into both the malting and brewing industries, and a system of revolving drums is now substituted in a very large number of malt-houses for the old process of germination on the floor. This, called the Galland-Henning drum system, is now extensively used in the United States and in Europe as an improvement on the old German method of 'flooring.' By this process the barley is germinated, or malted, by a current of warm air passing through revolving drums. More uniform results are obtained in less time with less labor and much less floor space than by 'floor malting.'

Brewing.—The brewing of malt may be divided into six stages: (1) Grinding; (2) Mashing; (3) Boiling; (4) Cooling; (5) Fermenting; (6) Clearing. A further stage, Storing, formerly in use, is now almost entirely dispensed with by modifications in the preceding stages.

Grinding.—When the malt is received at the brewery, it is first passed between revolving steel rollers, and in this way is coarsely bruised, rather than ground, so that the grain can be readily saturated with water in the next stage.

Mashing.—This is the brewers' term for infusion, and is to the brewer what the 'drawing' of tea is to the housewife: it extracts the strength. This stage of the process is conducted usually in a large vat or tank, called a mash-tun. The ground or crushed malt is mixed with the proper quantity of water (the composition of the water is important in

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brewing—the most suitable being ‘hard’ and free from organic matter), and the mass, or ‘mash,’ is then agitated by a series of arms radiating from the centre of the tun, stirring every portion of the mash. The temperature is kept at about 160° F., and under these conditions there is developed a further quantity of a substance, diastase, which converts the starch of the malted barley into glucose, or grape-sugar. This change begins immediately, or, in fact, was begun during the germination of the barley, when its further production at that time was arrested by increasing the temperature and drying the malt. The temperature best suited for the action of diastase, 140° to 160° F., is maintained for two or three hours, and at the end of that time the ‘wort’ has a very sweet taste, because the starch has been entirely converted into sugar. The action of the diastase is so rapid that most of the conversion occurs during the first few minutes, but a longer time is allowed and fresh water at about 190° F. is added. This extract, or ‘wort,’ contains the saccharine, albuminous, and mineral constituents of the malted barley. It is sampled from time to time, and tested to determine its strength. The only portion of the malted barley not now in solution is the chaff or husk: this, with the small quantity of gluten, starch, and sugar which it contains, is called ‘grains,’ and is fed to cattle. See MALT REFUSE. The extract obtained by this process of mashing is drained off into another large vat, and passes into the third stage of brewing.

Boiling.—This is conducted in a large closed vat, in which the wort is mixed with hops, and kept at the boiling point until the aromatic oil, resin, and tannin are extracted from the hops; this usually requires 1 to 2 hours, depending on the kind of beer to be brewed. After the extraction of the aromatic and bitter principles of the hops, and the separation, by boiling, of the mucilage or glutinous matter still remaining in the wort, it passes to the fourth stage.

Cooling.—The wort is now cooled by allowing it to flow in a cascade over an upright coil of copper pipes, through which ammonia or cold brine is driven.

Fermenting.—When the liquid has been cooled to 50° or 60° F., it is conveyed into a fermenting vat, where it is mixed with yeast, and fermentation begins. During fermentation, the sugar (which the diastase has prepared from the starch) is converted by the yeast into alcohol. The stronger the wort, the more yeast is required. Carbonic oxide is at the same time produced in large quantity; and this gas, partly confined for a time by the gluten and water, fills the remainder of the vat with froth, which diminishes in quantity as the fermentation approaches the end. It is necessary, however, to sample the beer after the apparent conversion of the sugar into alcohol, and, by an instrument called the saccharometer, observe the density of the wort, and note whether any sugar remains. After all the sugar has been converted into alcohol, and the beautiful mounds of snow-white froth have disappeared, the fermenting stage is completed.

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Clearing.—This consists in merely skimming off the yeast (from which is made the compressed yeast of commerce), and—till recent years—in running the beer into casks to be stored in the *lager* or cellar for several months, to ripen or mature by further completing the process of fermentation. This was the common way of making B. by the old process of slow fermentation; but during the past few years, the time required has been reduced from several months to 10 days, by what is known as the Phaudler vacuum process. This process, by which the fermentation is conducted in large metallic tanks, connected with an exhaust to remove the carbon dioxide, combines the main fermentation of the fermentation vat with the ‘ruh’ (German *still* or *quiet*) fermentation of the ‘lager’ by removing the carbon dioxide as rapidly as it is formed—thereby retaining the health of the yeast plant, and greatly improving the flavor of the B. It enables the brewer to make a better B. in 10 days than was formerly made in 3 to 5 months. Moreover, it saves the great expense of large storage cellars, and is the most beneficent improvement in modern brewing.

The principal constituents of B., as well as of ale, stout, and porter, are water, alcohol, sugar, albuminoids, and the extractive matter of the hop. The amount of alcohol varies from one to 10 per cent. The following table shows the average composition of B. manufactured in the United States and in Germany:

	United States.	Germany.
Alcohol.....	4·34	3·95
Extract.....	6·149	5·78
Ash.....	0·270	0·234
Phosphoric acid.....	0·0636	0·077
Potash.....	0·0835	0·066
Albuminoids.....	0·9880	0·440
Specific gravity.....	1020	1016·5

Adulterants.—The starch, or glucose, prepared from corn or rice is used as a substitute for barley; but B. is now rarely adulterated with such things as *coccus indicus*, quassia, aloes, grains of paradise, or any such substances, formerly used more or less.

The former practice of dropping a cube of sodium bicarbonate (baking-soda) through the bung-hole of the barrel to give ‘head’ to the B. is now being discarded; and instead the B. is charged with carbonic oxide gas from a cylinder in which the gas has been liquefied by pressure. The use of this method of charging is increasing very rapidly. The alkali of the bi-carbonate is objectionable, and causes some of the albuminoids to separate. This is avoided by use of the liquefied gas; and when the vacuum process is used for rapid fermentation, a bright, clear, and strong B. of excellent keeping quality is produced.

In S. America, long before the Spanish conquest, the Indians prepared a B., from Indian corn, called *chica*. This maize-beer is still brewed, and by a rude process whose

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principles are similar to those above indicated. The *chica* is made also from barley, rice, pease, manioc, pineapples, and grapes. The Crim Tatars prepare a B. from millet seed, called *bouza*, or millet beer. The same seed is used in Sikkim, on the s. slopes of the lower Himalaya, and yields a B. there called *murwa*. The Arabians, Abyssinians, and many African tribes employ *teff*, or the seeds of *Poa Abyssinica*, and millet seed as sources of B. The Russians prepare a B. from rye, called *quass*, or *rye-beer*. The Tatars ferment milk into *koumiss*, or milk-beer. The Arabians use milk to yield their *leban*, and the Turks to produce their *yaourt*. In the n. of Scotland, the Orkneys, and parts of Ireland, buttermilk or *sour-milk* is allowed to stand till fermentation begins, and an intoxicating liquor results. The South Sea islanders prepare a B. from the root of *Macropiper methysticum*, or the *intoxicating long pepper*, which is called *Ava* (q.v.).

The only drawback to the possible manufacture of maize B. on a large scale is the excess of oil in the germ of the grain. This germ is now extracted by a patent process, and the germless maize has been found to yield a mild and pleasant B. of brilliant amber color, which keeps well, and is likely to be popular. Bitter B. acts as a tonic and slight stimulant; and in many cases it is recommended by medical men to convalescents.

See further, ALE: LAGER BEER: PORTER: FERMENTATION: FERMENTED LIQUORS: HOP.

The following is an approximate statement, issued 1888, of the production and consumption of B. in several countries. It should be noted that in Germany, the consumption varies greatly in the different states: in Würtemberg it is 40 to 50 gallons per head:

	Production, barrels.	Consumption, gals. per head.
Belgium.....	5,800,000	36.00
United Kingdom.....	27,500,000	26.27
German Empire.....	25,500,000	20.00
Denmark.....	600,000	11.65
Holland.....	900,000	8.45
Austria-Hungary.....	7,700,000	7.10
Norway.....	376,000	6.36
Switzerland.....	440,000	5.87
France.....	5,500,000	5.21
Sweden.....	537,000	4.20
Canada.....	370,000	3.17
Russia.....	2,000,000	0.84
Italy.....	94,000	0.18

The following tables, compiled from the U. S. internal revenue reports, are given, not as an exact statement of the local consumption, but only as the nearest possible approximation thereto by a report of the *sales*. It is evident that in the great beer-brewing cities (e.g. Milwaukee) the sales must largely exceed the consumption; while in their surrounding country, often in other states, the consumption must similarly exceed the sales. In those states marked * the sales are affected by prohibitory laws (see PROHIBITION OF THE LIQUOR TRAFFIC). The cities marked † have high license laws, licenses varying from \$500 to \$1,300:

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STATES AND TERRITORIES.	Total Sales in 1890, Barrels.	Sales per cap. 1890, Barrels.	Total Sales in 1893, Barrels.
Alabama.....	30,713	·020	44,284
Alaska.....	773	1,087
Arizona.....	682	·011	369
California.....	724,018	·599	777,797
Colorado.....	179,934	·429	231,692
Connecticut.....	211,451	·283	244,339
*Dakotas.....	32,386	·063	14,263
Delaware.....	34,755	·205	54,637
District of Columbia.....	110,447	·479	161,960
Georgia.....	32,565	·017	69,006
Idaho.....	6,193	·073	5,512
Illinois.....	2,182,673	·570	3,392,912
Indiana.....	493,087	·224	636,808
*Iowa.....	88,266	·046	129,391
*Kansas.....	2,700	·001	2,677
Kentucky.....	308,436	·165	360,130
Louisiana (includes Miss.).....	194,637	·080	286,909
Maryland.....	541,641	·519	631,227
Massachusetts.....	953,467	·425	1,241,431
Michigan.....	540,426	·258	717,593
Minnesota.....	325,819	·250	415,791
Missouri.....	1,801,693	·672	2,075,238
Montana.....	33,233	·251	41,213
Nebraska.....	129,916	·122	156,457
Nevada.....	5,273	·128	3,965
*New Hampshire (includes Vt. and Maine).....	397,983	·292	404,240
New Jersey.....	1,498,283	1·036	1,911,540
New Mexico.....	5,985	·038	6,676
New York.....	8,435,111	1·406	9,826,898
Ohio.....	2,301,413	·626	2,720,975
Oregon.....	87,732	·247	102,906
Pennsylvania.....	2,658,195	·505	3,535,493
Rhode Island.....	80,266	·231	159,426
*South Carolina.....	9,685	·008	5,279
Tennessee.....	62,013	·035	102,115
Texas.....	66,685	·029	129,638
Utah.....	32,782	·157	39,253
Virginia.....	50,490	·030	79,910
Washington.....	68,815	·196	114,070
West Virginia.....	115,877	·151	146,597
Wisconsin.....	1,981,201	1·174	2,838,440
Wyoming.....	2,593	·042	2,728
Totals.....	26,820,953	·428	33,822,872
CITIES—			
Albany, N. Y.....	393,707	4·147	313,499
Baltimore, Md.....	537,993	1·238	567,711
†Boston, Mass.....	833,278	1·858	962,970
Brooklyn, N. Y.....	1,508,144	1·870	1,827,222
Buffalo, N. Y.....	492,873	1·927	662,667
†Chicago, Ill.....	1,673,685	1·521	2,761,714
Cincinnati, O.....	1,115,053	3·755	1,310,782
Cleveland, O.....	356,284	1·359	521,810
†Detroit, Mich.....	278,953	1·354	385,423
Louisville, Ky.....	200,916	1·246	360,130
Milwaukee, Wis.....	1,527,032	7·468	2,153,096
Newark, N. J.....	1,003,524	5·519	1,161,049
New Orleans, La.....	206,121	2·856	286,909
New York City.....	4,257,978	2·809	4,838,960
†Philadelphia, Pa.....	1,458,846	1·393	1,759,922
†Pittsburgh, Pa.....	338,387	1·418	583,499
Rochester, N. Y.....	427,533	3·193	591,158
San Francisco, Cal.....	479,217	1·602	511,937
†St. Louis, Mo.....	1,613,215	3·570	2,042,300
Syracuse, N. Y.....	202,870	2·301	248,089
Toledo, O.....	246,488	3·206	290,261
Troy, N. Y.....	194,447	3·189	187,770

BEER—BEERS.

BEER, SALE OF: traffic in various fermented liquors; subject to legal restriction in various countries.

In England, the laws of 1869, 70, 72, and 74—applying also to sale of wines and liquors by retail in refreshment houses—make the following requirements: During Sundays, all licensed houses must be shut except between 12½ or 1 P.M. and 2½ or 3 P.M., and between 6 P.M. and 10 or 11 P.M., the justices having a slight power to vary these hours. A fixed time of opening and closing is prescribed for week-days. When a keeper of the house is convicted of an offense, it is usually indorsed on his license, and after three indorsements he forfeits the license; and, in some cases, even the landlord's power to relet the house for the sale of liquors is suspended for several years, according to the nature of the offenses. Though the houses are closed for part of Sundays, yet travellers and lodgers are exempted in most cases, and can be supplied as usual with liquors. Some of the penalties are very severe. License to sell beer is confined under heavy penalties to that particular privilege. The place where beer is exclusively sold is called a *beer-house*, differing in this respect from an *ale-house*, which means a place where other liquors as well as beer are retailed. The term *public-house* applies to the second most frequently.

In the United States, the laws restricting this traffic differ greatly in different states. See LICENSE FOR SALE OF INTOXICATING DRINK: LOCAL OPTION: PROHIBITION: also the cross-references.

BEERBOOM, or **BIRBHUM**, *bērb-hôm'*: dist. in the lower provinces of Bengal: 1,756 sq. m.: between n. lat. 23° 35' and 24° 23', and between e. long. 87° 7' and 88° 4'. The chief town is Suri, 100 m. n.n.w. of Calcutta, and after it the dist. is sometimes named. The inhabitants are generally a rude race, and there appear to be hardly any places worthy of the name of towns. Pop. (1890) 696,943.

BEERS, *bērz*, **ETHEL LYNN (ELIOT)**: author. 1827, Jan. 13—1879, Oct. 10; b. Goshen, N. Y.; descendant of John Eliot (q.v.), translator of the Bible into the language of the Pequot Indians. She married William H. Beers, and having been a writer of verses before her marriage, continued to contribute to magazines, etc. She died in Orange, N. J.—Her poem '*All Quiet along the Potomac*' (pub. as *The Picket Guard* in *Harper's Weekly* 1861) made a profound impression: the authorship was disputed, but was fully decided in her favor. Later she wrote *Weighing the Baby*, *Baby Looking Out for Me*, *Which shall it be?* and other pieces which achieved deserved popularity. Her poems were collected (1879) under the title *All Quiet along the Potomac, and Other Poems*.

BEERS, HENRY AUGUSTIN: author: 1847. July 2—
 ———; b. Buffalo, N. Y. He graduated at Yale 1869, and was tutor 1871–75, and asst. prof. of English from 1875. He passed five months at Heidelberg studying, and was made full prof. of English 1880. B. wrote a collection of verses entitled *Odds and Ends* (1878); *A Century of American Literature* (1878); *Life of N. P. Willis* (1885); *Selections from Willis's Prose Writings* (1885); a second collection of verses, *The Thankless Muse* (1885); *The Ways of Yale* (1895); *A History of English Romanticism in the Eighteenth Century* (1899), etc.

BEERSHEBA, *bē-ēr-shē'ba*, or BIRESSEBA, *bir-ēs-sē'ba* ('well of the oath,' or 'well of the seven'): a place in Palestine, so called because here Abraham entered into an alliance with Abimelech, King of Gerar, which he ratified with an oath and a gift of seven ewe lambs. B. was on the s. border of Palestine, about 52 m. s.w. from Jerusalem, and formed the limit in that direction of the Israelitish dominion. It was one of the most ancient as well as one of the most interesting places in sacred record. While Abraham resided at this place, he received the command to sacrifice Isaac. Afterwards, Isaac had his residence here. Esau was robbed of his birthright and blessing here, and here Jacob sacrificed to God before departing into Egypt; the sons of Samuel were made judges here, and it was hence that Elijah was forced to flee into the desert from Jezebel's wrath. After the captivity, B. was occupied for some time by the Jews, and in 4th c. after Christ, it was a Roman garrison. Afterwards, the Crusaders are said to have fortified it, and to have regarded it as a place of importance. Two circular wells of fine pure water—the largest 44 ft. deep to the surface of the water, and 12½ ft. in diameter—and a heap of ruins about half a mile long and a quarter broad, remain to mark the place where B. once was.

BEER-STONE: a species of freestone quarried at Beer, in Dorsetshire, Eng.

BEESHA, *bē'sha*: genus of grasses with the habit and most of the characters of bamboos, but remarkable for the fleshy pericarp which incloses the seed, forming a sort of berry. The species are few, natives of the East Indies.

BEESTINGS, n. plu. *bēst'ingz*, also spelled BIEST'INGS, and BEEST'NINGS [see BIESTINGS]: first milk given by a cow after calving.

BEES-WAX, see BEE: WAX: also CANDLE.

BEET--BEET FLY.

BEET, n. *bēt* [F. *beste*: Ger. *beete*: L. *bēta*]: genus of plants of the natural order *Chenopodiaceæ* (q.v.), distinguished by a 5-cleft perianth, five stamens inserted on a fleshy ring surrounding the ovary, and the fruit adhering to the calyx, and collected in clusters of two or three. The species are not numerous; they are mostly biennials, with smooth, ovate, stalked root-leaves, and tall, leafy, flowering-stems. They are natives of the temperate parts of the old world. The COMMON B. (*B. vulgaris*) is a native of the shores of the Mediterranean, but is now in very general cultivation both in fields and gardens, chiefly for the sake of its large succulent roots, used as food for man and domestic animals, the manufacture of sugar (see BEET-ROOT SUGAR: SUGAR BEET), and, to a limited extent, as a substitute for malt. The form of the roots varies from long to almost globular, and the color ranges from a very dark red to almost white. The B. can be grown on a variety of soils, but a light loam which has been highly enriched is specially favorable. The land should be plowed, and the surface finely pulverized. Manure, if used, must be thoroughly decomposed. Commercial fertilizers are often of great benefit. For an early crop, sowing is to be done as soon as the ground is dry in the spring, but for roots to be kept through the winter it is deferred till June or July, according to latitude. The seed is sown thickly in drills 12-18 in. apart, rather deeply covered, and the soil packed firmly upon it. From 5 to 8 lbs. per acre are requisite. When well started the plants are to be thinned to stand 4-9 in. apart; 2 or 3 plants are to be left in a place, but the number should subsequently be reduced to one. The young plants are often used for greens. The crop must be kept clean by cultivation, hoeing, and, if necessary, hand-weeding; but in all operations, from thinning to harvesting, great care must be taken to avoid cutting or bruising the roots or the leaves. Harvesting is to be done before there are hard frosts. The tops should be cut at least half an inch from the bulbs. The bulbs should not be allowed to wilt, but should be placed in boxes, or barrels in a cool cellar and covered with a little dry earth. When large quantities are grown they should be stored in pits in the field so constructed as to be protected from frost. The Mangel-Wurzel (q.v.) is largely grown for cattle. The Swiss Chard (*B. Cyclo*) has no edible root, but is grown for its leaves used as spinach. The midrib of the leaf is quite large and is sometimes used as asparagus. It is a beautiful plant. The Sea B. (*B. marina*) is grown exclusively for greens. The Chilian B. (*B. Chiliensis*), recently introduced from Chili, is cultivated for ornamental purposes. More than 80 varieties of the B. are grown in this country. Of these more than 30 are classed as either Sugar Beets or Mangel-Wurzels.

BEET-FLY (*Anthomyia Betæ*): insect which sometimes infests crops of mangel-wurzel, and other kinds of beet, depositing its eggs on the leaves, the soft parts of which the larvæ devour. It is a dipterous insect of the family *Muscides*, and belongs to a genus of which very many species

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are known, the larvæ of some of which are well known as feeding upon the roots of cabbages, turnips, etc. See CABBAGE-FLY: TURNIP-FLY: POTATO-FLY. It is not so large as the common house-fly.

BEETHOVEN, LUDWIG VAN, *bā'tō-vèn*: 1770, Dec. 17—1827, March 26; b. Bonn; d. Vienna: unrivalled composer, whose works have made a new epoch in the development of music. His father, a tenor-singer in the elector's chapel at Bonn, began to cultivate the genius of his son when only five years of age. He next placed him under the court-organist, Vanden Eeden and then after under the composer Neefe. In his eighth year he created astonishment by his performance on the violin; when only eleven, he played the music in Bach's *Wohltemperirtes Klavier*; and in his thirteenth year he published, at Mannheim, a volume of variations on a march, songs, and sonatas. In 1792, he was sent to Vienna by his patron, the Elector of Cologne, to enjoy the instructions of Haydn, who first made him acquainted with the works of Händel. He also studied composition under Albrechtsberger. There he soon attracted notice by his extraordinary ability as an extempore player of fantasias, and also by some compositions, which, however, did not escape the censure of critics. He became so much attached to Vienna, that, after his patron's death in 1801, he determined to remain, and declined an invitation to England. In 1809, when another offer tempted him to leave Vienna, several friends of music, with the Archduke Rudolf at their head, raised a subscription to provide for the composer a pension sufficient to retain him. At Vienna, therefore, he stayed during the remainder of his life, secluded from the world, of which he knew as little as it knew of him; and in later years, still more isolated from society by a defect of hearing, which gradually became confirmed into entire deafness. In this sad inviolable solitude, he produced his new symphonies, his sublime overtures, his quintets and quartets, so full of profound conceptions and mysterious revelations of the highest harmonies, and his pianoforte sonatas, which express, sometimes, a peculiar train of feelings, at other times appear to represent his own recluse character. Shut out in a large measure from the ordinary pleasures of life, ignorant of the sweetness of married life, and able to enjoy only in a slender measure social intercourse, he retired for compensation into the world of his own imagination, and brought forth from its deep resources those treasures of harmony which, though at first received with a shy astonishment rather than a cordial admiration, are now ranked among the works of art which cannot die. These new forms and original creations, which display B.'s majestic powers in music, were only gradually developed; in his early productions, he submitted to established forms of composition.

The works of B. may be divided into three classes, or may be assigned to three distinct periods of his intellectual development. All the works of his first period, though important, show the influence of his teacher Haydn, or of

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his more highly esteemed model, Mozart. This period of composition may be said to extend to his 16th orchestral work, including, besides several pianoforte sonatas, trios for pianoforte and for stringed instruments. All these early works display the highest cultivation of the forms and principles of art previously established in the Viennese school of music.—The second period of B.'s artistic life, in which his genius was completely self-reliant, extends from the 16th to the 80th work. This was certainly the most productive and brilliant part of his career. To it belong his greatest creations, his magnificent and powerful orchestral works—symphonies, overtures, etc.—all of which display the highest qualities of imaginative composition. Besides the great orchestral works, it includes many sonatas for pianoforte, and various compositions of chamber-music—septets, quintets, quartets, trios, serenades, etc. In dramatic composition, B. produced only one opera, but this was *Fidelio*, the first truly German musical work of a dramatic character. This was the result of great study, and, as it is now given, is the reconstruction of an earlier composition. Other dramatic pieces are—the overture, interludes, and melodramatic music in Goethe's *Egmont*, and the instrumental music and choruses in the *Ruins of Athens*.—In the third and last period of B.'s career we find those two gigantic works, the *Missa Solennis in D minor*, and the ninth symphony (D minor) with chorus. These works transcend all common laws and forms, and belong to the highest sphere of art. Their depth and mystery can be apprehended only by those who have deep emotions and profound technical knowledge of music. Other works of this last class approach those just mentioned, though they do not reach the same elevation. But all are alike in passing far beyond the ordinary traditional forms of art. All are pervaded by an impulse as of inspiration. Among these works may be mentioned the great quartets for bow-instruments (mostly published after the death of B.), the grand overtures—works 115 and 124—and several sonatas for pianoforte, especially that in B-flat major.

The life of B. has been written by Schlosser, Schindler, Moscheles, Marx, Nohl, Thayer (1866-71). See also Nottebohm, *Skizzenbuch Beethoven's*.

BEETLE, n. *bēt'l* [AS. *bitel*, the biter—from *bitan*, to bite]: a general name of insects having a horny wing cover. BEETLE-HEADED, dull; stupid.

BEETLE, v. *bēt'l* [AS. *beotan*, to threaten: OE. *bitel*, biting, sharp—from AS. *bitan*, to bite]: to jut out and hang over; to hang or extend out. BEET'LING, imp jutting. BEETLED, pp. *bēt'ld*. BEETLE-BROW, a projecting brow. BEETLE-BROWED, a. having prominent or projecting brows.

BEETLE, *bē'tl*: a name popularly applied to many kinds of coleopterous insects. It is never extended to insects of any other order, and it is sometimes used in works on natural history as a common name for all coleopterous insects; but this makes it to include many kinds to which it is not

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popularly applied, as fireflies, lady-birds, weevils, cantharides, etc. It is also employed by some authors in a more restricted sense, as a designation of the insects forming the large tribe *Scarabæides*; but the restriction, equally with the extension, is an interference with the popular use of the English word, of which, however, the limits are very uncertain. To consider the B., with strict regard to that popular use, and at the same time to science, would be neither easy nor profitable, as the assemblage of kinds would be not only large, but very miscellaneous. See COLEOPTERA: SCARABÆIDÆ: BOMBARDIER BEETLE: STAG BEETLE: BURYING BEETLE: GOLIATH BEETLE: ROSE BEETLE: etc. The name BLACK BEETLE is often given to the COCK-ROACH (q.v.). see also BLAPS.

BEETLE, n. *bēt'l* [AS. *bytel*, a mallet: Ger. *beutel*, a mallet for beating flax—from BAT 1, which see]: a heavy wooden hammer or mallet. BEERLING, a finishing mechanical process applied originally to linen shirting, afterwards to cotton shirting, in imitation of linen, to give the cloth a hard and wiry look, by flattening the yarn irregularly in an angled manner. This is done by the rising and falling of upright wooden stampers, placed close together in a row, with their square butts resting on a roller over which the cloth passes under them, doubled in a particular way so as to give the yarn an angled appearance when struck. The stampers are worked by the rotation of a horizontal shaft, acting with tapets, like the cylinder of a barrel-organ.

Linen weft is likewise beetled, but by hand hammering, on a large flat stone, with a wooden mallet, to soften this yarn for easiness of working it, or 'getting it on,' in the language of the craft, in weaving. Beetling is likewise a process in flax-dressing, to separate the woody from the flexible fibres of the plant. See FLAX-DRESSING.

BEE TLE-STONE: name given by the lapidaries of Edinburgh to hard nodules of clay ironstone, found abundantly in a low cliff, composed of shale, at Newhaven, or strewn upon the beach in that neighborhood. They take a beautiful polish, and have been employed to make letter-weights and other ornamental articles. The name was given in consequence of the supposed origin of the fossil which is of most frequent occurrence as the nucleus of the nodules, which, however, is not a fossil beetle, but a coprolite (q.v.). Some of the nodules contain a fossil fish, and some a fossil of vegetable origin.

BEET-ROOT SUGAR: sugar obtained from the beet, similar to cane sugar and equally good. In 1747 Margraff, a chemist, and a member of the Berlin Acad. of Sciences, discovered that sugar was one of the constituent elements of the beet root. He believed that the way was thus opened for the establishment of a great industry, but his methods were imperfect and he did not live to see any practical results from his discovery. About 50 years later, Achard, one of his pupils and his successor as a director of the Acad., adopted a different process, and was far more suc-

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cessful. In 1799 he sent to the Institute of France a sample of the sugar, a description of the method by which it was obtained, and a statement that the cost of manufacture need not exceed 6 cents a pound. The Institute appointed certain of its members to test the matter. After following the processes of Margraff and Achard, and various modifications of these methods, by which they obtained a fair percentage of sugar, they made a long report in which they expressed the opinion that the cost of production was so high that the beet would never be likely to come into competition with the sugar cane—an opinion which subsequent events have proved incorrect, as more than 60 per cent. of the sugar now produced in the world is made from beets. In 1801 Achard succeeded in establishing a factory, and during the next few years, in spite of ridicule and opposition, many other factories were built in Germany, while in France, under the protective policy of Napoleon, the industry was considerably developed. In Russia, also, factories were established and govt. aid was granted. The great European wars, 1812–15, almost crushed the industry, but it slowly revived, and by 1830 was again established in France, by 1835 in Germany, and since 1840 it has been very rapidly developed. In the United States, the first experiments in manufacturing sugar from beets were made at Philadelphia 1830; but the persons in charge knew little about the cultivation of the roots or the manner of extracting sugar, and no results were obtained. Eight years later, D. L. Child, of Northampton, Mass., made about 1,300 lbs. of sugar from beets at a cost of 11 cents a lb. Little more seems to have been done till 1863, when Germans established a factory in Ill., which, owing to unfavorable conditions of climate and soil, proved a failure. The first successful beet sugar plant in the U. S. was erected in Alvarado, Cal., in 1876. In 1889 the largest beet sugar plant in the U. S. was built by Claus Spreckels in Watsonville, Cal. Under various official bounties factories have been built throughout the West.

As the neck of the beet contains a poor quality of juice, together with mineral salts, it is removed before the process of sugar-making is commenced. When the roots are to be used immediately, this is done at the time of harvesting, but if they are to be stored, it is usually deferred till they are to be taken to the factory. Some growers remove the leaves, but others store the whole plant. The roots must not be allowed to wilt, and great care must be taken to prevent bruising when they are handled. In cold climates the roots are stored in heaps (sometimes entirely above ground, though in some cases the earth is excavated to a depth of 12–18 in.), 4–6 ft. wide, the same in depth, and as long as required, which are lightly covered with earth. As the cold grows severe, the covering is increased, but it is necessary to guard against heating as well as freezing. In a mild climate, like that of portions of Cal., little or no protection is required. Under the most favorable conditions, roots which are kept very long lose a portion of their

sugar. When the beets reach the factory they are placed in large tanks, in which they are thoroughly washed by machinery. They are then carried by an elevator to a machine which cuts them into thin slices. The juice is extracted by means of a press, or by the diffusion process. The latter is a more recent method, and is considered a great improvement over the former. The clarification of the juice is much more difficult than is that of the juice of the sugar cane. It is accomplished by treating with lime, afterward by carbonic acid, and filtering. These operations are repeated, though with a reduced quantity of lime, till the object is secured. By boiling in vacuum pans, the juice is then converted directly into sugar, or else into a syrup, which is subjected to another evaporation. By these processes raw sugar is obtained. When refined sugar is desired, the juice and syrup are treated with bone-black, and the crystals of sugar are washed in a centrifugal machine.

The profitable manufacture of beet-root sugar depends on a combination of favorable conditions. The processes of extraction have been brought to a high degree of perfection, but large capital is required for establishment and proper equipment of a factory and the carrying on of the business. The choice of a location, also, is of very great importance, as no degree of skill in manufacture can atone for an error in this respect. There are soils which are very productive, but which yield beets of poor quality, as they are deficient in sugar or contain large proportions of mineral salts. Some localities otherwise favorable are subject to drought, excessive rainfall, or extreme heat in summer; and in other sections cheap labor cannot be obtained. The farmer cannot afford to take the risk of producing a crop without a contract for the product of a certain area of land; and, as the yield is unknown, the manager of the factory is liable to lose by failing to obtain a sufficient supply of beets to keep his factory running, or by engaging more than he can handle. In the United States, the manufacturer of sugar from the beet-root is obliged to compete with European makers, who have had much experience, and who have great advantage in securing labor and obtaining roots; he must compete, also, with the manufacturers of cane sugar at home and abroad. There is undoubtedly a large area of land in this country in which the cultivation of the beet for sugar can be made profitable. The production in the United States increased from 2,800 tons in 1890 to 163,128 tons in 1901-2. The production in Europe, as officially reported for 1901-2 in long tons, was: Germany, 2,229,408; Austria, 1,302,038; France, 1,183,420; Russia, 1,110,000; Belgium, 345,000; and Holland, 203,172; the world's total being 7,006,164 long tons.

. BEFALL, *v.* *be-fawł'* [*be*, and *fall*]: to happen to; to come to pass. BEFAL'LING, *imp.* BEFELL, *pt.* *bě-fěł'*. BEFALLEN, *pp.* *bě-fawł'ěn*.

BEFFANA, *bā-fā'nâ*, a corruption of *Epiphania* (Epiph-

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any): name given in Italy to a singular custom prevailing on Three Kings' Day (see BEAN-KING'S FESTIVAL), or Twelfth Night. According to tradition, the B. was an old woman who, being busy cleaning the house when the three wise men of the East passed by on their way to offer their treasures to the infant Saviour, excused herself for not going out to see them on the ground that she would have an opportunity of doing so when they returned. They, however, went home by another way; and the B., not knowing this, has ever since been watching for their return. She is supposed to take a great interest in children, who on Twelfth Night are put earlier to bed, and a stocking of each is hung before the fire. Shortly, the cry '*Ecco la B.*' is raised; and the children, who have not gone to sleep, dart out of bed, and seize their stockings, in which each finds a present bearing some proportion in value to his conduct during the year. If any one has been conspicuously ill-behaved, he finds his stocking full of ashes—the method the B. takes of expressing her disapprobation. It was also customary in Italy, on Twelfth Night, to carry an effigy called the B. in procession through the streets amid great rejoicings; but this, which was probably the relic of the celebration of a middle-age 'mystery,' has fallen greatly into disuse. The word is also used to awe naughty children.



Beffroi, or Breaching Tower.—From Grose's *Military Antiquities*.

BEFFROI, *běf'froy*, or BELFRY, *běl'frī*: name of a tower used in the military sieges of ancient and mediæval times. When a town was to be besieged, a movable tower,

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as high as the walls, was brought near it; and this tower was the Belfroi. Its use is more than once spoken of by Cæsar in his account of his campaigns in Gaul. Froissart describes, with his usual spirit, a B. employed at the siege of the castle of Breteuil, 1356. At the siege of Jerusalem by the Crusaders, a B. was carried in pieces, put together just beyond bow shot, and then pushed on wheels to a proper position. The object of such towers was to cover the approach of troops. Sometimes they were pushed on by pressure, sometimes by capstans and ropes. The highest were on six or eight wheels, and had as many as twelve or fifteen stories or stages; but it was usual to limit the height to three or four stages. They were often covered with raw hides, to protect them from the flames of boiling grease and oil directed against them by the besieged; and there was a hinged drawbridge at the top, to let down upon the parapet of the wall, to aid in landing. The lower stage frequently had a ram (see BATTERING RAM); while the others were crowded with archers, arbalestiers, and slingers; or there were bowmen on all the stages except the top, which had a storming or boarding party. During the wars under Charles I., the royalists made a B. to aid in the besieging of a town or castle in Herefordshire; it was higher than the defense-works, and was provided with loopholes, a bridge, etc.; but the Roundheads captured it before it could be applied to use. Ducange thinks that the name of belfry (q.v.) even to a bell-tower, was derived from the warlike machine called the beffroi or belfry. See BELFRY.

BEFIT, v. *bě-fít'* [AS. *be*; F. *fait*, wrought]: to suit; to become. BEFITTING, imp. BEFITTED, pp.

BEFLATTER, v. *bě-flăt'tèr* [*be*, and *flatter*]: to load with flattery.

BEFOG, v. *be-fög'*: to involve in a fog. BEFOGGED', pp. and a.

BEFOOL, v. *bě-fól'* [AS. *be*; F. *fol*, idle]: to lead astray; to delude. BEFOOLING, imp. BEFOOLED, pp. *bě-fôld'*.

BEFORE, prep. *bě-fôr'* [*be*, and *fore*: AS. *œforan*]: in front of; in presence of: AD. in front; further onward: CONJ. further onward in time. BEFOREHAND, ad. *bě-fôr' hand* sooner in time; previously; at first. BEFORETIME, ad. *-tīm*, formerly; of old time.

BEFORTUNE, *bě-for'tūn*: to happen to; to betide.

BEFOUL, v. *bě-fowl'* [*be*, and *foul*]: to make foul; to soil; to entangle; to run against or amongst. BEFOULING, imp. BEFOULED', pp. *-fowld'*.

BEFRIEND, v. *bě-frënd'* [*be*, and *friend*]: to assist; to favor; to aid in a difficulty. BEFRIENDING, imp. BEFRIENDED, pp. *bě-fr'nd.ĕd*. BEFRIENDMENT, *-mènt*, the act of befriending; the state of being befriended.

BEG, v. *běg* [from *bag*, as when alms were uniformly given in kind, the bag was a universal characteristic of the beggar; a corruption of AS *bedecian*, to beg—*lit.*, to ask something for the bag or wallet]: to ask earnestly; to beseech; to entreat; to solicit charity; to take for granted; to

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assume. BEG'GING, imp. BEGGED, pp. *běgd*. BEGGAR, n. *běg'gér* [compare Gael. *baigean*, a little bag; *baigear*, a beggar]: one who is poor and asks charity; one much reduced in circumstances; one who begs: V. to reduce to poverty. BEG'GARING, imp. BEGGARED, pp. *běg'gèrd*, reduced to poverty by misfortune or misconduct. BEG'GARLY, a. -*lì*, mean; poor: AD. meanly. BEG'GARLINESS, n. -*lì-nēs*, poverty; meanness. BEGGARY, n. *běg'gèr-ĭ*, a state of great poverty. BEG'GARMAN, n. a man who is a beggar. BEG'GABLE, a. able to be obtained if begged for, or at least able to be begged with a doubtful result. BEGGING THE QUESTION, assuming the truth of the very thing to be proved. BEGGAR-MY-NEIGHBOR, a certain game of cards. *Note.*—The early association of *beg* with *bag* arose from a popular theory; *beg*, to bid often, appears rather to be a frequentative of *bid*—see Skeat.—SYN. of 'beg': to ask; request; beseech; supplicate; entreat; implore; solicit; adjure; crave; desire.

BEG, n. *běg* [Turkish *beg* = *bā*], or BEY, *bā*: Turkish title, rather vague in its import, and commonly given to superior military officers, ship-captains, and distinguished foreigners. More strictly, it applies to the governor of a small district, who bears a horse-tail as a sign of his rank. The governor of Tunis has this title.—'Beglerbeg,' or, more correctly, Beilerbegi ('lord of lords'), is the title given to the governor of a province who bears three horse-tails as his badge of honor, and has authority over several begs, agas, etc. This superior title belongs to the governors of Rumelia, Anatolia, and Syria.

BEGA, *bě'ga* [Mahratta, Hind., etc., *bigħa*]: in *India*, a land measure equal to about one-third of an acre.

BEGAS, *bā'gās*, KARL: 1794–1854, Nov. 23; b. Berlin: court-painter to the king of Prussia, prof. and member of the Acad. of Art in Berlin; received his first lessons in painting from Philippart, at Bonn. In 1811, he went to Paris, where he spent eighteen months in the studio of the celebrated Gros. In 1815, Frederick William III. on the occasion of his visit to Paris, bought a large original painting by B., *Job surrounded by his Friends*, and gave him two commissions for different churches in Berlin. This led to his moving thither, 1813 and to his subsequently residing in Italy at the king's expense. On his return to Berlin, 1825, he painted many biblical subjects for churches, as well as other pictures. There are frescoes of colossal size by him in the new church of Sacrow, near Potsdam. He is especially distinguished for the animation and individuality of his portraits, and painted for the king a gallery of celebrated authors and artists, including Humboldt, Schelling, etc. Several of his *genre* paintings have been rendered familiar by repeated engravings; and his works, in general, are eminent for expression, rich coloring, and a peculiarly clear *chiaro oscuro*.

BEGASS, n. *bě-gās'* [Sp. *bagázo*, trash, the remains of pressed sugar-cane or grapes. etc.]: the sugar-cane after

being cut and crushed: also spelled BAGASSE and MEGASS. See BAGASSE.

BEGET, n. *bě-gět'* [AS. *begittan*, to obtain: Goth. *bigitan*, to find]: to generate; to produce; to cause to exist. BEGETTING, imp. BEGOT', pt. BEGOTTEN, pp. *bě-göt'n*. BEGETTER, n. one who.

BEGGAR, *běg'gar*: a person who solicits charitable aid from the public at large. The word has been supposed, though questionably, to have some connection with the fraternity known as Beghards. See BEGUINES. The actual begging or solicitation of temporal aid became, however, so conspicuous a feature among these mendicant orders, that the term originally applied to their sacred duties seems at a very early period to have acquired its modern vulgar acceptance. There is no class of men who have had their lot and condition so varied by ethnical and social conditions as beggars. In a civilized industrious country, the B., to have any chance of relief, must manage to induce the belief, whether true or false, that he is on the verge of want, and requires the solicited alms to keep him from starvation. Among oriental nations, on the other hand, beggars have often been a potent class, who may be rather considered as endowed with the privilege of taxing their fellow-creatures, than as objects of compassion. It has sometimes been supposed that a residue of this feeling of superiority characterizes the mental physiology even of the mendicant of civilization, and that, abject as he seems, he considers himself to some extent a privileged person, entitled to support from his fellows, without being amenable to the slavish drudgery by which the working-classes live. In Europe, during the middle ages, those doctrines of Christianity which are intended to teach us to abjure selfishness and worldly-mindedness were exaggerated into a profession of total abstraction from worldly cares and pursuits. Hence arose the large body of religionists who, as hermits or members of the mendicant orders, lived on the contributions of others. In later times, the mendicant orders became the proudest and the richest of the clergy; but while the chiefs lived in affluence, the practices of the lower adherents fostered throughout Europe a system of mendicancy very inimical to civilization and industrial progress. Ever since the Reformation, the British laws have had a struggle with the B.; but neither by the kindness of a liberal poor-law, nor by the severity of a merciless criminal code, have they been able to suppress him. When a country provides, as Britain does, that no one shall be permitted to starve, it would naturally be expected that the springs of miscellaneous charity would be dried. But it is not so, and it is indeed often plausibly urged, that entirely to supersede all acts of kindly generosity between man and man, through rigid legal provisions, must lower the standard of human character, by depriving it of all opportunity for the exercise of the generous emotions. It is clear that, in the light of political economy, promiscuous charity is the most costly and most corrupting way of administering relief to indi-

gence, and that the idle B. on the street does not deserve such a luxurious table as the industrious mechanic cannot afford to himself. But, at the same time, no one who drops a coin in a beggar's hat can say how many others may be deposited there during the day, and whether the B. is merely drawing a wretched pittance, or deriving a good income. Begging being a trade, it is not always those who are the poorest, but those who are the most expert, who will practice it to the best results. The great object is to seize on and appropriate any characteristic calculated, whether permanently or temporarily, to excite compassion. Hence periods of general distress are often the harvest of the B., and his trade rises and falls in an inverse ratio with that of the working community. Times of prosperity are not favorable to him, because he is then told that there is plenty of work for him. But when workmen are dismissed in thousands, and their families turned on the road to seek alms, the professional beggars, by their superior skill and experience, will be sure to draw the prizes in the distribution. Many surprising statements have been made of the large incomes made by skilful professional beggars, especially in London. The most remarkable anecdotes on the subject will be found in Grose's *Olio*, whence they have often been repeated. Attempts have been made, with questionable success, to set forth an average statement of the earnings in different departments of the B. trade. A good deal of information of this kind will be found in such reports as that of the Charities Organization Soc. of New York. It does not appear, however, that this trade is, like others, dependent on the law of supply and demand. The B. generally is so constitutionally, whether from hereditary or other physical causes. He has a loathing, even to horror, of all steady, systematic labor, and he will rather submit to the hardships and privations of the wanderer's lot than endure this dreaded evil.—See POOR, THE POOR-LAWS; VAGRANT.

BEGGAR-MY-NEIGHBOR: a game at cards played usually by two persons (mostly children), between whom the cards are divided. Holding their cards with the backs upwards, the players lay down a card alternately, until an honor is played, which is paid for by the adversary—four cards for an ace, three for a king, two for a queen, and one for a knave; such payment being made, the winner lifts the trick. If, however, an honor should be laid down during the payment, then the opposite party must pay for that in the same way; and so on, till a payment is made without an honor.

BEGGING HERMITS: see AUGUSTINS.

BEGHARD, or BEGUARD, n. *bě-gârd'* [F. *béguard*: Ger. *beghart*]: an order of St. Francis, which aimed at great purity, held no property, and subsisted by daily begging. *Note*.—This word seems to have had the same origin as *béguin*, the women in mid. L. being called the *beghīnæ*, and the men *beghardi*. See BEGUINES.

BEGHARMI, or BAGIRMI, *ba-ghēr'me*: country in central Africa; bounded on the n. by Lake Tchad; on the

BEGILT—BEGKOS.

w. by the Shari, or Great river, which divides it from the kingdom of Bornou, and on the e. by the Waday kingdom. It extends s. to about lat. 10° n. Its greatest length is about 240 m., breadth 150. The whole of B. proper is flat, with a slight inclination towards the n., its general elevation being about 1,000 ft. above the level of the sea. The outlying provinces in the s.e. are slightly mountainous. B. has three considerable rivers flowing through and along its borders—the Benuwé, Logon, and Shari; the last of which, augmented by the Logon, is more than 600 yards across at Mcle. There is, in general, however, the utmost scarcity of water in the country, and the inhabitants guard their wells with jealous care. The soil is composed partly of sand and partly of lime, and produces the grain and fruit common to countries of central Africa. Worms and ants are very destructive to the crops. The ants appear to be a grievous pest. Dr. Barth describes them as eating through his matting and carpeting, and he had the utmost difficulty in preserving his goods from entire destruction by them. The total population is about a million and a half. From the numerous deserted villages, the population appears to have been much greater formerly. Mohammedanism has been introduced among them, but many are still pagans, and all are grossly superstitious. The only industrial arts are weaving and dyeing. Physically, they are a fine race of people, superior to the tribes around them, the women being especially handsome. The men are subject to a peculiar disease in the little toe, called 'mukárdam.' It seems to be caused by a worm, which eats the toe away. One in ten of the male population are said to have lost their little toes through this cause. The sultan is absolute in his own dominions, and several smaller states are tributary to him; and he, in his turn, is tributary to the more powerful ruler of Waday. The fighting-force of the kingdom is about 13,000 men. Mascna (q v.), the capital, has a circumference of about 7 miles.—Barth's *Travels in Central Africa*.

BEGILT', a. [*be*, and *gilt*]: gilded over.

BEGIN, v. *bě-gĭn'* [AS. *onginnan* or *beginnan*]: to commence; to enter upon something new; to take the first step. BEGIN'NING, imp.: N. first cause: origin; first state; the rudiments. BEGAN, pt. *bè-găn'*. BEGUN, pp. *bě-gŭn'*. BEGIN'NER, n. one who takes the first step; an author of a thing; one without experience. *Note*.—The fundamental meaning of *begin* seems to be, 'to attain to;' 'to come into being;' 'to produce;' and may thus really have its origin in such roots as Gr. *genos*; L. *genus*, kind, sort, race: Gael. *bith*, life; and *gin*, to procreate—see Wedgwood and Mackay.—SYN. of 'beginning, n.': commencement; origin; original; rise; source.

BEGIRD, v. *bě-gĕrd'* [AS. *begyrdan*]: to surround with a girdle; to encompass; to encircle. BEGIRD'ING, imp. BEGIRD'ED, or BEGIRT', pp. BEGIRT'ING, a. in *OE*., girdling; encompassing.

BEGKOS, *běg'kôs*, or BEIKOS, *bă'kôs*: a large village of

BEGLERBEG—BEG-SHEHR.

Anatolia, on the Bosphorus, 8 m. n.n.e. of Scutari, said to be the locality of the contest between Pollux and Amycus, in which the latter was killed. See ARGONAUTS.

BEGLERBEG, *běg'ler-běg*: see BEG.

BEGNAW. v. *bě-naw'* [*be*, and *gnaw*]: to eat away; to bite. BEGNAWN, pp. *bě-nawn'*, eaten away.

BEGONE, int. *bě-gōn'* [imper. of *be*, and pp. of *go*: Dut. *begaan*, touched with emotion: AS. *bigán*, to go about]: go away, emphatically; depart. WOE-BEGONE, *wō' bě-gōn*, oppressed with woe.

BEGONIA, n. *bě-gō-nĩ-ă* [after *M. Begon*, a French botanist]: an interesting genus of plants common in gardens, ord. *Begon'iācēæ*; elephant's ears—so named from the form of their leaves.

BEGONIACEÆ, *be-gō-nĩ-ă'sē-ē*: nat. ord. of exogenous plants, the place of which in the system is doubtful, but is supposed by Lindley to be near *Cucurbitacēæ* (q.v.). The B. are herbaceous or suffruticose plants, with alternate leaves, which are oblique at the base, and have large, dry stipules. The flowers are in cymes, unisexual, the perianth colored, with four unequal divisions in the male flowers, and five or eight in the female; the stamens are numerous; the fruit is membranous, winged, 3-celled, bursting by slits at the base, the seeds minute.—The order contains about 160 known species, all of which have pink flowers. Almost all are tropical plants, and some of them are often to be seen in house cultivation; but a small species of *Begonia* grows on the Himalaya at a height of at least 11,500 ft., often growing on the trunks of trees. The leaves of the *Begonias* have a reddish tinge. The leaves and young stems are succulent and acid, and those of *B. Malabarica*, *B. tuberosa*, and other species, are used as pot-herbs, or in tarts. The juicy stalks of a large species found in Sikkim, at an elevation of five or six thousand ft. are mentioned by Dr. Hooker as employed to make a pleasant acid sauce. The roots of some are used in their native countries as astringents, and some of the Mexican species are used as drastic purgatives.

BEGOT, v., BEGOT'TEN, v. [see BEGET]: procreated.

BEGRIME, v. *bě-grīm'* [Dut. *begremen*, to blacken—from AS. *be*: Sw. *grums*, dregs, mud: Dan. *grime*, a spot of dirt on the face (see GRIME)]: to sprinkle all over with powder; to soil deeply all over with dirt. BEGRIMING, imp. BEGRIMED, pp. *bě grĩmd'*.

BEGRUDGE, v. *bě-grŭj'* [AS. *be*; F. *gruger*, to grieve: Gr. *grudsein*, to mutter—*lit.*, to mutter in grumbling (see GRUDGE)]: to feel discontent; to grudge; to envy the possession of. BEGRUD'GING, imp. BEGRUDGED', pp. *-grŭjd'*.

BEG-SHEHR, *běg-shě'hér*: fresh-water lake of Asia Minor, Karamania; 44 m. s.w. of Koniye, presumed to be the ancient *Caralitis*. It is about 20 m. long, and from 5 to 10 m. broad. It contains many islands, and discharges itself by a river of the same name into Lake Soglah. On



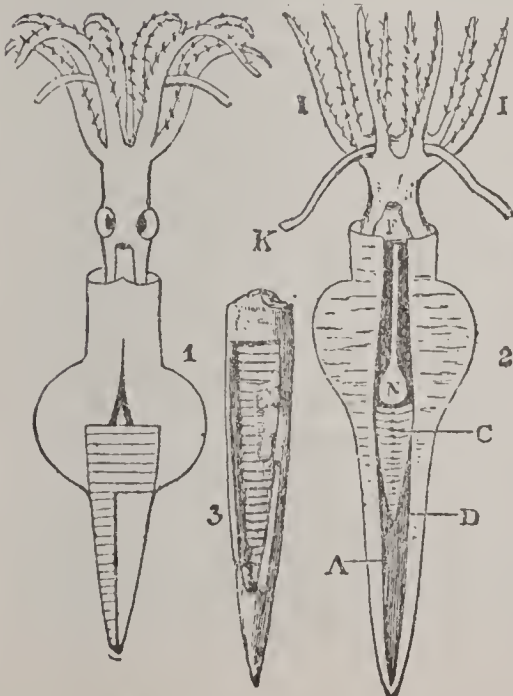
Beguine.



Common Beet.



Begonia rex.



E Belemnites.—1, *Belemnoteuthis antiquus*—ventral side; 2, *Belemnites Oweni* (restored): A, Guard; C, Phragmacone; D, Muscular tissue of mantle; F, Infundibulum; I, Uncinated arms; K, Tentacula; N, Ink-bag; 3, Belemnite.—British Museum.

its e. and n. shores are the towns of Begshehr and Kereli, the old *Caralio*, which issued imperial coins, and is supposed to have occupied the site of Pamphylia.

BEGTASHI, *běg-tá'shē*: a religious order in the Ottoman empire, which had its origin in the 14th c. The name is believed to be derived from that of a celebrated dervish, Hadji Begtash, to whom the order appears to owe its institution. The members use secret signs and passwords as means of recognition, in the same way as is done by the masonic orders, some of them indeed appearing to be identical with those of Free-masonry. Although numbering many thousand persons of good social position, the society does not appear to exercise any material influence in the religion or politics of Turkey.

BEGUILE, v. *bě-gil'* [AS. *be*; F. *guille*, deceit]: to deceive by juggling tricks; to cheat; to amuse. BEGUI'LING, imp. BEGUILED', pp. *-gild'*. BEGUI'LINGLY, ad. *-li*. BEGUI'LER, n. one who. BEGUILE'MENT, n. act of deceiving.—SYN. of 'beguile': to deceive; delude; cheat; amuse; ensnare.

BEGUINES, n. plu. *bě-gēnz'*, BEGUI'NÆ, or BEGUT'TÆ [F. *béguin*, a linen cap; mid. L. *beghīna*]: the earliest of all lay societies of women united for pious purposes; so named from their linen caps. *Note*.—The name is also said to have arisen from a mere popular nickname, prov. F. *bégui*; F. *béguer*, to stammer; F. *bègue*, a stammerer.—Skeat. The reason of their origin is not quite certain, but it is usually attributed—in part, at least—to the disproportion in the numbers of men and women occasioned by the Crusades. These wars had robbed Christendom of thousands of its most vigorous sons, and left multitudes of widows and maidens, to whom life had henceforth something of a solemn and sorrowful aspect, and who therefore betook themselves, in earnest and affectionate piety, to the charities and duties of religion. The origin of the word is doubtful. The popular tradition of Brabant since the 17th c., that a St. Begga, dau. of Pepin, and sis. of St. Gertrude, founded, 696, the first sisterhood of B. at Namur, has no historical basis. Hallmann has also shown that the supposed oldest document of the B. (1065), giving an account of their establishment at Vilvorde, near Brussels, is unauthentic. The most probable account is, that a priest named Lambert le Bègue, or Le Bèghe, i.e., the Stammerer, about the year 1180, founded, in Liege, a society of pious women, who were called by his name. The B. were not restricted by vows, nor did they follow the rules of any order, but were united under a *supérieure* for the exercise of piety and benevolence, and lived generally in separate small cottages, which, collectively, formed the *Beginagium*, or 'vineyard,' as it was scripturally termed. Their establishments were often enriched by liberal donations. A church, a hospital, and a house of reception or common entertainment, generally belonged to every community of Beguines. The sisters were distinguished from the rest of the laity only by their diligence and devoted-

ness, piety, modesty, and zeal for the purity of youthful education. Societies of B. flourished greatly during the 12th and 13th c., when they spread themselves over France and Germany. Among the most important were those in Hamburg, Lübeck, Regensburg, Magdeburg, Leipsic, Goslar, Rochlitz, and Görlitz. As the pietists of the middle ages, the B. were often subjected to persecution by the mendicant orders of friars; but, on account of their practical usefulness, were sheltered by the pope and councils as well as by secular authorities. In the 13th and 14th c., the B. became united with the persecuted spiritualists among the Franciscans (*Fratricelles*), and with the sect of the 'Brethren and Sisters of the Free Spirit.' Hence arose certain heresies, which occasioned interference by the Inquisition; and on account of certain immoralities, a synod held at Fritzlar required that all candidates must be forty years old before they could enter a society of Beguines. These sisterhoods maintained their position in Germany and the Netherlands longer than in other countries. In Holland, they existed at the close of the 18th c.; and in the present day we find here and there so-called *Beguinen-häuser* (Beguine-houses) in Germany; but they are now nothing more than almshouses for poor spinsters. At Ghent, there is still a celebrated institution of B., numbering as many as 600 sisters, besides 200 *locataires*, or occasional inmates. Their houses form a kind of distinct little town, called the Béguinage, which, though environed by a wall, is open to the visits of strangers. Living here a life of retirement and piety, the B., in their simple dark dresses, go out as nurses to the hospital, and perform other acts of kindness among the poor. As above stated, they are under no monastic vow, but having attached themselves to the sisterhood, it is their boast that none is known to have quitted it. There are houses of B. also at Antwerp, Mechlin, and Bruges; and in 1854, one was established in France, at Castelnaudary, in the department of Aude.

BEGHARDS, *bê-gârdz'* [Ger. *begehren*, to seek with importunity]: see BEGHARD. Societies of laymen styling themselves Beghards, first appeared in Germany, the Netherlands, and the s. of France in the beginning of the 13th c., and were known in Italy as *Bizachi* and *Bocasoti*; but they never obtained the reputation enjoyed by the Beguine sisterhood. Towards the end of the 13th c., they were commonly stigmatized as *bons garçons*, *boni pueri*, 'ministers' men,' 'bedesmen,' 'pietists,' 'vagabonds'—contemptuous titles, which expressed the low estimation in which they were held. On account of heretics of all sorts retreating into these half-spiritual communities, they were subjected to severe persecutions after 1367, and were gradually dispersed, or joined the orders of Dominicans and Franciscans. In the Netherlands, where they had preserved a better character than elsewhere, they maintained their ground longer, and were protected by Pope Innocent IV. (1245), in Brussels by Cardinal Hugo (1254), and in Liege by Pope Urban IV. (1261); but their communities disappeared in the 14th c. —See Mosheim, *De Beghardis et Beguinabus* (Leip., 1790),

BEGUM—BEHAVE.

and Hallmann's *Geschichte des Ursprungs der Belg. Beghinen* (History of the Origin of Beguines in Belgium), Berlin, 1843.

BEGUM', v. [*be*, and *gum*]: to cover or smear with gum.

BEGUM, n. *bē'gūm*, or **BEGAUM**, n. *bē'gawm*—fem. of **BEG**: in the *E. Indies*, a princess or lady of high rank.

BEGUN, v.: see under **BEGIN**.

BEHAIM, *bā'hīm*, **MARTIN**: about 1459–1506, July 29; b. Nuremberg: famous cosmographer, descended from a Bohemian family which settled in Nuremberg after the middle of the 13th c., and still remains there. He early entered into mercantile life, and went to Venice (1457), and to Mechlin, Antwerp, and Vienna (1477–1479), in pursuit of trade. In 1480, he was induced to go to Portugal, where he soon acquired a reputation as a skilful maker of maps. In 1484–5, he accompanied the Portuguese navigator, Diego Cam, in a voyage of discovery along the w. coast of Africa, and sailed as far as the mouth of the Zaire or Congo river, in lat. 22° s., which was 19½° degrees further than had ever been previously reached. In 1486, B. sailed to Fayal, one of the Azore Islands, where a Flemish colony had settled. Here he married the daughter of Jobst von Küster, gov. of the colony. In 1490, he left Fayal, and returned to his native city, Nuremberg, where he resided, 1491–93. During this stay, he constructed a large globe, principally from the writings of Ptolemy, Pliny, Strabo, Marco Polo, and Sir John Mandeville. It is still preserved by the family of B. in Nuremberg, and is a valuable record of the progress of discovery, though it indicates that B.'s geographical knowledge did not at that period extend beyond Japan on the e., and the Cape Verd Islands on the w. After travelling through Flanders and France, B. again resided in Fayal, 1494–1506, and then removed to Lisbon, where he died. The services rendered by B. to geographical discovery and the science of navigation were considerable, though, according to the latest investigations, there is no support for the theory that B. was the discoverer of America, or even that Columbus and Magelhaen were indebted to B. for guidance with regard to their discoveries. B. left no works except his maps and charts.—Murr's *Diplomatische Geschichte des Ritters von B.* (1778–1801); A. von Humboldt's *Examen Critique de l'Histoire de la Géog. du Nouveau Continent* (1836).

BEHALF, n. *bē-hāf'* [AS. *behefe*, profit; *on healfe*, on the side of: Goth. *halbs*, half]: support; favor; side or cause; defense.

BEHAR: see **BAHAR**.

BEHAVE, v. *bē-hāv'* [AS. *behabben*, to restrain—from *habban*, to have: Ger. *gehaben*, to behave]: to bear or carry one's-self; to conduct; to act; to govern. **BEHA'VING**, imp. **BEHAVED'**, pp. *-hāv'd'*. **BEHAVIOR**, n. *bē-hāv'yēr*, conduct good or bad; manner of conducting one's-self; propriety of carriage; comportment. **BE UPON ONE'S BEHAVIOR**, placed in such a condition as requires care and caution. **DURING GOOD BEHAVIOR**, while conducting one's-self honestly and

with propriety.—SYN. of 'behavior': demeanor; conduct; carriage; deportment.

BEHEAD, v. *bě-hěd'* [*be*, and *head*: AS. *beheáfðian*, to behead—from *be*, by; *heáfod*, head]: to cut off the head. BEHEAD'ING, imp.: N. the act of cutting off the head—formerly a common punishment for great crimes. BE-HEAD'ED, pp.

BEHEADING: see CAPITAL PUNISHMENT.

BÉHEMOTH, n. *bě'hē-mōth* [Heb. *behemóth*, beasts, great beast]: the animal described by Job, and supposed to be the hippopotamus or river-horse.

BEHEN, n. *bě'hěn* [Ar.]: the name of a plant whose root is medicinal.

BEHEST, n. *bě-hěst'* [AS. *behæst*, a vow: Icel. *heita*, to be named]: the act of speaking out; command; order; precept.

BEHIGHT, v. *bě-hīt'* [AS. *behetan*, or *behatan*, a vow, a promise]: in *OE.*, to vow; to promise; to intrust; to address; to command; to assure; to reckon.

BEHIND, prep. *bě-hīnd'* [AS. *behindan*, afterwards, after: Fin. *hanta*, the tail]: at the tail of; at the back of; after: AD. remaining; at a distance; out of view. BEHIND'-HAND, a. backward; tardy: AD. in arrears.

BEHISTUN, *bā-hīs-tón'*, or BISUTUN (Lat. *Bagistanus*; Persian, *Baghistan*, Place of Gardens); ruined town of the Persian province of Irak-Ajemi, 21 m. e. of Kirman-shah, lat. 34° 18' n., long. 47° 30' e. B. is celebrated for a remarkable mountain, which on one side rises almost perpendicularly to the height of 1,700 ft. and which was in ancient times sacred to Jupiter or to Ormuzd. According to Diodorus, Semiramis, on her march from Babylon to Ecbatana, in Media Magna, encamped near this rock, and having cut away and polished the lower part of it, had her own likeness and those of a hundred of her guards engraved on it. She further, according to the same historian, caused the following inscription in Assyrian letters to be cut in the rock: 'Semiramis having piled up one upon the other the trapping of the beasts of burden which accompanied her, ascended by these means from the plain to the top of the rock.' No trace of these inscriptions is now to be found, and Sir Henry Rawlinson accounts for their absence by the supposition that they were destroyed 'by Khusraú Parvís when he was preparing to form of this long scarped surface the back wall of his palace.' Diodorus also mentions that Alexander the Great, on his way to Ecbatana from Susa, visited Behistun. But the rock is especially interesting for its cuneiform inscriptions (q.v.), which within recent years have been successfully deciphered by Sir H. Rawlinson. The principal inscription of B., executed by the command of Darius, is on the n. extremity of the rock, at an elevation of 300 ft. from the ground, where it could not have been engraved without the aid of scaffolding, and can now be reached by the adventurous antiquary only at considerable

BEHISTUN.

risk to his life. The labor of polishing the face of the rock, so as to fit it to receive the inscriptions, must have been very great. In places where the stone was defective, pieces were fitted in and fastened with molten lead with such extreme nicety, that only a careful scrutiny can detect the artifice. 'But the real wonder of the work,' says Sir H. Rawlinson, 'consists in the inscriptions. For extent, for beauty of execution, for uniformity and correctness, they are perhaps unequalled in the world. After the engraving of the rock had been accomplished, a coating of silicious varnish had been laid on, to give a clearness of outline to each individual letter, and to protect the surface against the action of the elements. This varnish is of infinitely greater hardness than the limestone rock beneath it.' Washed down in some places by the rain of



Rock Inscriptions at Behistun.

twenty-three centuries, it lies in consistent flakes like thin layers of lava on the foot-ledge; in others, where time has honeycombed the rock beneath, it adheres to the broken surface, still showing with sufficient distinctness the forms of the characters. The inscriptions—which are in the three forms of cuneiform writing, Persian, Babylonian, and Median—set forth the hereditary right of Darius to the throne of Persia, tracing his genealogy, through eight generations, up to Achæmenes; they then enumerate the provinces of his empire, and recount his triumphs over the various rebels who rose against him during the first four years of his reign. The monarch himself is represented on the tablet with a bow in hand, and his foot upon the prostrate figure of a man, while nine rebels, chained together by the neck, stand humbly before him; behind him are two of his own warriors, and above him another figure [see cut]. The Persian inscriptions which Sir H. Rawlinson has translated are contained in the five main columns numbered in cut 1, 2, 3, 4, 5. The first column

contains 19 paragraphs, and 96 lines. Each paragraph after the first, which commences, 'I am Darius the Great King,' begins with 'Says Darius the King.' The second column has the same number of lines in 16 paragraphs; the third 92 lines and 14 paragraphs; the fourth has also 92 lines and 18 paragraphs; and the fifth, which appears to be a supplementary column, 35 lines. Sir H. Rawlinson fixes the epoch of the sculpture at B.C. 516-515. See *Journal of Asiatic Society*, vol. x.

BEHME, *bām*, JACOB: see BÖHME.

BEHN, *bĕn*. AFRA, or APHARA (JOHNSON): English author: 1640-1689; b. Wye, Kent; dau. of a barber. In her youth she spent some time in Surinam, one of whose natives, Oronoko, was the subject of her most notable novel. Returning to England about 1658, she married a merchant of Dutch extraction named Behn, and was presented at court, where her personal appearance and freedom of manners pleased the 'Merry Monarch,' who sent her as a spy to Flanders. Afterward she busied herself with literature. Her numerous plays, poems, tales, letters, etc. (reprinted, 6 vols., London 1871), though witty, are disfigured by impurity of tone; and, in intellectual ability, do not merit the praise given them by Dryden and others.

BEHOLD, v. *bĕ-hōld'* [AS. *be, healdan*, to observe: Dut. *behouden*, to preserve, to keep]: to look steadily upon; to view; to see with attention. BEHOLD'ING, imp. BEHELD', pt and pp. BEHOLDEN, a. *bĕ-hōld'ĕn*, indebted; obliged. BEHOLD'ER, n. one who. BEHOLD', int. see! lo!—SYN. of 'behold': to view; look; see; contemplate; eye; regard; observe; perceive; scan.

BEHOOVE or BEHOVE, v. *bĕ-hōv'* [AS. *behofian*, to be fit; *behefe*, advantage: Ger. *behuf*, behoof: L. *habēō*; Dut. *hebben*, to have]: to be fit; to be necessary for; used chiefly in the 3d pers. sing., 'It behoves' BEHOOVING, imp. *bĕ-hōv'ing*. BEHOVED, pp. *bĕ-hōvd'*. BEHOOF, n. *bĕ-hōf'*, need; profit; advantage.

BEHRENDZ, *bĕr'ĕndz*, ADOLPHUS JULIUS FREDERICK, D.D.: Congl. minister: b. Nymegen, Holland, 1839, Dec. 18. His family removed to this country while he was very young. He graduated at Denison Univ., O., 1862, and at the Rochester (Bapt.) Theol. Seminary, N. Y., 1865. In the latter year he became pastor of a Bapt. church at Yonkers, N. Y., and in 1873 was pastor of the First Bapt. Church at Cleveland, O. In 1876 he became pastor of the Union Congl. Church at Providence, R. I., and 1883 of the Central Congl. Church at Brooklyn. He died 1900, May 22.

BEHRING: see BERING, VITUS: BERING SEA: ETC.

BEIGE, n. *bĕzh* [F.]: unbleached serge; a thin woollen fabric used for ladies' dresses.

BEILAN, *bī'lān*: a pass and town in the n. extremity of Syria, on the e. shore of the Gulf of Iscanderoon. The pass of B. runs from s.w. to n.e., between the mountain-ranges of Rhosus and Amanus, and is the common route from Cilicia into Syria. It is one of the two Amanian passes,

BEING—BEIRAM.

supposed to be the lower one, mentioned by Cicero as capable of easy defense, on account of their narrowness. There seems no doubt that, in the war between Darius and Alexander, the B. Pass was an important consideration to both commanders, but historians and geographers appear to be at variance as to the precise advantage taken of it in the struggle.

The town of BEILAN is near the summit-level of the pass, 1,584 ft. above the Mediterranean Sea. It is esteemed for its salubrity, and its fine water supplied by numerous aqueducts. Between the n.w. foot of the pass and the sea are caves and springs, supposed site of the ancient Myriandrus. B. was the scene of a battle between the Egyptians and Turks, 1832, when the latter were defeated. Pop. abt. 5,000.

BEING, *v. bē'ing* [see BE]: imp. of *be*: N. existence; a state of existence; a person existing; any living creature.

BEIRA, *bā'è-rá*: Portuguese province, bounded n. by the provinces of Minho and Tras-os-Montes; s. by Estremadura and Alemtejo; e. by Spain; and w. by the Atlantic Ocean: about 9,222 sq. m. The surface is mountainous, and the soil on the plains sandy, and generally far from fertile. The mountain-slopes afford good pasturage for sheep and cattle. The products are corn, wine, oil, flax, and various kinds of fruit, and considerable attention is paid to the rearing of bees. Sea-salt is obtained at the coast. The river Douro waters the whole of its n., and the Tagus a portion of its s., boundary. The Mondego and Vouga flow through its centre. Iron, coal, and marble are wrought in small quantity. There is little done in manufactures. The inhabitants are industrious. In 1835, the province was divided into Upper and Lower Beira, the former having Viseu and the latter Castel Branco for its capital. Pop. of B. about 1,390,000.

BEIRAM, or BAIRAM, *bī'ram*: Mohammedan festival somewhat analogous to Easter. It commences immediately after the fast of Ramadan, or Ramazan, which corresponds to Lent. Being one of the only two Moslem feasts in the year, it is looked forward to with great interest, the zest being enhanced by the previous abstinence. Its advent is announced at Constantinople by the discharge of artillery, the beating of drums, and blowing of trumpets. Properly, it should terminate in one day, but the Moslems in the capital think it no offense to their abstemious prophet to carry the festivities over two days; while in other parts of Turkey and Persia, they are often protracted a week or more. Dances, music, processions, etc., in which the women are permitted greater indulgence than usual, form prominent features of the feast; and at this time the different orders of the empire pay homage to the sultan. Seventy days after, the Moslems celebrate their only other feast ('the festival of the sacrifices'), called the *lesser B.*, which is the day appointed by the Mecca pilgrims for slaying the victims, and was instituted in commemoration of the offering up of Isaac by Abraham. The lesser B. usually lasts three

BEIT—BEJAPUR.

days, but is not celebrated with the pomp of the other. During the continuance of each of the festivals, only one religious service takes place. The Mohammedan year being the lunar one of 354 days, in the course of thirty-three years the festivals run through all the seasons.

BEIT, *bāt*: an Arabic word, signifying house, abode, or place, the equivalent of which in Hebrew is *Beth*. Thus, in Arabic are found *Beit-al-Harām*, 'the house of the sanctuary,' or 'the sacred house;' and in Hebrew, *Beth-el*, 'house of God;' *Beth-any*, 'place of dates;' *Beth-abara*, 'place of fords,' etc.

BEIT-EL-FAKĪH, *bāt-el-fā'kē* (House of the Saint): town of Tehama, on the Red Sea. Being the frontier town of the Egyptian government, it has considerable trade in coffee, wax, gum, etc., which articles are exchanged for Indian piece goods and British shawls. It has a citadel of some strength. The houses are built partly of mud and partly of brick, and roofed with branches of the date-tree. It is described by travellers as the hottest town in Tehama. Pop. abt. 8,000.

BEITUL'LAH (Arab., House of God): the spacious building or temple at Mecca, which contains the Kaaba: see MECCA and KAABA.

BEJA, *bā'zhá* (the *Pax Julia* of the ancients): town in the province of Alemtejo, Portugal, 36 m. s.s.w. of Evora. It is fortified, its walls being flanked by 40 towers; has a castle and a cathedral, and manufactories of leather and earthenwares. Pop. 6,500.

BEJAN, or BAJAN, *bā'jan*: name of the first 'freshman' class in some at least of the Scotch, and of old in many continental universities. The word is believed to be derived from the French *bec-jaune*, or yellow neb, a term used to designate a nestling or unfledged bird. The levying of *bejaunia*, or payments for 'first footing' by students on entering college, was forbidden by the statutes of the Univ. of Orleans, 1365, and of the Univ. of Toulouse, 1401. The election of an *Abbas Bejanorum*, or 'Abbot of the Greenhorns,' was prohibited by the statutes of the Univ. of Paris, 1493. In the Univ. of Vienna, the *bejan* was called *beanus*, a word of the same meaning, and no doubt of the same origin.

BEJAPE, v. *bě-jāp'* [AS. *be*, about: F. *japper*, to yelp, to yapper: an imitative word]: in *OE.*, to laugh at; to mock; to deceive; to impose upon. BEJA'PING, imp. BEJAPED, pp. *bě-jāpt'*.

BEJAPUR, *bě-ja-pór'*: decayed city in the presidency of Bombay, lat. 16° 50' n., long. 75° 48' e.; s.e. of Bombay, Poonah, and Satara, at the respective distances of 245, 170, and 130 m.; on an affluent of the Kistna or Krishna, which flows into the Bay of Bengal, and nearly touching the w. border of the Nizam's territories. B. was for centuries the flourishing cap. of a powerful kingdom, falling therewith under various dynasties in succession, Hindu and Mussulman, till, in 1686, it was captured by Aurungzebe. Thus,

stripped of its independence, B. speedily sank into the shadow of a mighty name, passing, during the early part of the 18th c., into the hands of the Mahrattas. On the overthrow of the Peishwa, 1818, it was assigned by the British to the dependent Rajah of Satara; but resumed on the extinction of the reigning family, 1848. Now that a gradual decay has done its worst, B. presents a contrast perhaps unequalled in the world. Lofty walls, of hewn stone, still entire, enclose the silent and desolate fragments of a city which is said to have contained 100,000 dwellings. With the exception of an ancient temple, the sole relic of aboriginal domination, the ruins are Mohammedan, and consist of beautiful mosques, colossal tombs, and a fort of more than 6 m. in circuit, with an inner citadel. An additional wonder of the place is, perhaps, the largest piece of brass ordnance in existence, cast at Ahmednuggur, where the mould may still be seen. Latterly, the Rajah of Satara and the British govt. have done everything to prevent further decay. Pop. (1881) 11,424; (1890) 16,759.

BEJAR, *bā har'*: fortified town of Spain, province of Salamanca, abt. 45 m. s. of the cap. of the province. It has cloth manufactures and an annual fair at which is considerable cattle trade. It has warm saline springs, and gives its title to a ducal family who have a palace within its walls. Pop. (1877) 11,099; (1890) 11,000.

BEJUMBLE, v. *bě-jŭm'bl*: to jumble together.

BEKA, n. *bě'kă* [Heb. *beka'*, half-part]: in *Bible*, a half-shekel.

BEKAA: the Cœle-Syria of the ancients, the 'Plain of Lebanon' of the Old Test. and El Bekaa (the Valley) of the natives of Syria: enclosed between the parallel ranges of Lebanon and Anti Lebanon, which mountains it divides; and extending about 90 m. from n. to s., its greatest width being about 12 m. It is the most rich and beautiful plain in Syria; but although the soil is good, and water abundant from the numerous mountain springs, a very small portion of it is cultivated. It is frequented by the Arabs, who bring down their young horses in the spring time to graze on the plain.

BEKE, *bēk*, CHARLES TILSTONE, PH.D., etc.: 1800, Oct. 10—1874, Jul. 31; b. and d. London: modern English traveller. He received a commercial education; studied law in Lincoln's Inn, and turned his attention to ancient history, philology, and ethnography. The results of these studies first appeared in his work, *Origines Biblicæ*, or researches in primeval history, vol. i. (Lond. 1834). His historical and geographical studies of the East led B. to consider the great importance of Abyssinia for intercourse with central Africa. Supported only by private individuals, he joined in Abyssinia the party led by Major Harris, and distinguished himself by the exploration of Godshem and the countries lying to the s. previously almost unknown in Europe. The results of these researches appeared partly in several journals, and in *Abyssinia, a Statement of Facts*, etc. (2d. ed. Lond. 1846). Having returned to Europe, he

excited the attention of geographers by his publications, the *Essay on the Nile and its Tributaries* (Lond. 1847); *On the Sources of the Nile* (1849); and by his *Mémoire Justificatif en Réhabilitation des Pères Paez et Lobo* (Paris, 1848). In 1861, Dr. and Mrs. B. made a journey to Harran; and undertook in 1865 a fruitless mission to Abyssinia, to obtain the release of the captives. At the commencement of 1874, Dr. B. started for the region at the head of the Red Sea, where he claimed (though his views are disputed) to have discovered Mount Sinai, e. of the Gulf of Akabah, and not w. as generally supposed. His widow published his *Discovery of Mount Sinai in Arabia, and of Midian* (Lond. 1878).

BEKES, *bā-kěsh'*, or BEKESVAR': town of Hungary, cap. of the county of the same name: situated at the confluence of the Black and White Kőrös. It has trade in cattle, corn, and honey. Pop. (1880) 23,938.

BEKKER, *běk'kér*, IMMANUEL: 1785-1871; b. Berlin: German philologist, distinguished by his recensions of the texts of Greek and Roman classics. He studied in Halle, (1803-07), and was the most eminent pupil of F. A. Wolf. Afterwards, he was engaged at Paris on the *Corpus Inscriptionum Græcarum*. The results of his researches in the libraries of Italy (1817-19) appear in his *Anecdota Græca* (3 vols., Berlin, 1814-21), and his numerous recensions of texts derived solely from MSS., and independently of printed editions. The writers included in these recensions are Plato, the Attic orators, Aristotle, Sextus Empiricus, Thucydides, Theognis, Aristophanes, etc. He became prof. at Berlin 1810.

BEKNOW, v. *bě-nō'* [*be*, and *know*]: in *OE.*, to acknowledge; to confess.

BEL: see BAAL.

BELA, *běl'a*, I., King of Hungary (reigned 1061-63): of the family of Arpad. He energetically suppressed the last attempt to restore heathenism, and by the introduction of a fixed standard of measures, weights, and coinage, virtually founded the commerce of Hungary. He was the first also to introduce the representative system into the diet, by appointing, in lieu of the collective nobility, two nobles only from each of the different counties.

BELA II., King of Hungary, surnamed 'the Blind' (reigned 1131-41). He was entirely under the guidance of his bloodthirsty spouse, Helena, and after her decease, drank himself to death.

BELA III., King of Hungary (reigned 1174-96). Educated in Constantinople, he introduced Byzantine customs and culture into his own country, which was favorable to its social development, though his evident devotion to the Greek emperor Emmanuel threatened its political independence.

BELA IV., King of Hungary (reigned 1235-70): d. 1270: son of that Andreas from whom the nobles extorted the 'Golden Bull,' Hungary's Magna Charta. His chief aim

BELABOR—BELBEYS.

was to humble the nobility, and restore the royal power to its former proportions; and he thus roused a spirit of universal discontent, which led to a party among the nobles calling in the Austrian duke, Frederick II., to their aid; but, in 1236, the duke was conquered by B., and forced to pay tribute. Before long, however, the king had to seek a refuge with his discomfited foe; for the Mongols, who invaded Hungary 1241, defeated him on the Sajó, and put him to flight. It was only after robbing him of all the treasure he had managed to save, and extorting from him three of his counties, that Frederick II., granted the royal fugitive a shelter in Austria, where he remained till the Mongols, having heard of the death of their khan, left the country which they had devastated. B. now made it his especial care, by rebuilding the destroyed villages, and inviting new settlers thither, to do away with the tokens of that terrible invasion; and he so far succeeded as to be able, 1246, to repay Frederick's inhospitality by defeating him at Vienna, and to repulse a second attempt at Mongolian invasion. His last years were embittered by an attempt at rebellion by his son Stephen.

BELABOR, v. *bě-lā'bér* [AS. *be*; L. *labor*, toil, exertion]: to beat soundly; to thump. **BELA'BORING**, imp. **BELA'BORED**, pp. *-bérđ*.

BELAMOUR, n. *běl'á-môr'* [F. *bel*, fair; *amour*, love]: in *OE.*, a fair lover; a gallant; a paramour; a consort. **BELAMY**, n. *běl'ă-mĩ* [F. *bel*, fair; *ami*, friend]: in *OE.*, a good friend; a fair friend; an intimate.

BEL AND THE DRAGON: an apocryphal book of the Old Test. It does not seem to have been accepted as inspired by the Jewish Church, nor is there any proof that a Hebrew or Chaldee version of the story ever existed. Jerome considered it a 'fable,' an opinion in which most modern readers coincide. It is, nevertheless, read for edification both in the Rom. Cath. and Anglican churches: in the former, on Ash Wednesday; in the latter, Nov. 23. According to Jahn, the aim of the writer was 'to warn against the sin of idolatry some of his brethren who had embraced Egyptian superstitions.'

BELATE, v. *bě-lāt'* [AS. *be*; L. *lātus*, carried: or simply *be*, and *late*]: to make a person too late. **BELA'TING**, imp. **BELA'TED**, pp.: **ADJ.** too late; benighted. **BELA'TEDNESS**, n. *-něs*, state of being belated.

BELAUD, v. *bě-lawđ'* [*be*, and *laud*]: greatly to praise.

BELAY, v. *bě-lā'* [Dut. *beleggen*, to lay around]: to block up; among *seamen*, to lay the cable round the bits; to fasten, as a rope. **BELAY'ING**, imp. **BELAYED**, pp. *bě-lāđ'*. **BELAY'ING-PINS**, the wooden pins on which the ropes are belayed or wound; usually of ash 12-16 inches long

BELBEYS, *běl-bās'* (ancient *Bubastis Agria*): town on the e. arm of the Nile, Lower Egypt, 28 m. n.n.e. of Cairo. It is enclosed by earthen ramparts, has numerous mosques, and is one of the stations on the route from Cairo to Suez, and from Egypt to Syria. Pop. 5,000,

BELCH—BELEM.

BELCH, *v. bělsh* [AS. *bealcan*; Dut. and Low Ger. *bolken* or *bulken*, to bellow]: to throw up anything violently, as wind from the stomach, or matter from a volcano: *N.* the act of throwing up or out; eructation. **BELCH'ING**, *imp.* **BELCHED**, *pp. bělsht.*

BELCHER, *bel'cher*, Sir **EDWARD**: 1799–1877, Mar. 18: distinguished English naval officer. He entered the navy, 1812, as a first-class volunteer, was soon made a midshipman, and in 1816 took part in the bombardment of Algiers. In 1825, B. was appointed asst. to the expedition about to explore Behring's Strait under Captain Beechey; in 1829, he was raised to the rank of commander. In 1836, he was in command of the *Sulphur*, commissioned to explore the w. coasts of America and the Indies. He was absent six years, in which time he had sailed round the world. During this voyage he rendered important services in the Canton river to Lord Gough, whose successes over the Chinese were greatly due to B.'s soundings and reconnaissances pushed into the interior. On his return, he published a narrative of the voyage; and in 1843, in consideration of his services, he was made a post-captain, and knighted. After being employed on surveying service in the East Indies, he was, 1852, appointed to the command of the expedition sent out by government to search for Sir John Franklin. B. published *The Last of the Arctic Voyages* (Lond. 1855); *Narrative of a Voyage to the East Indies in 1843–1848*; and other works. In 1861 he became rear-admiral of the red, 1866 vice-admiral, 1867 K.C.B., and rear-admiral 1872.

BELCHITE, *bel-chē'tā*: town of Spain, province of Saragossa, about 22 m. s.s.e. of the city of Saragossa; celebrated as the place where, 1809, June 18, the French, under Suchet, completely routed the Spanish under General Blake, capturing all their guns, 10 in number, with a loss of only 40 men. B. has woolen manufactures. Pop. over 3,000.

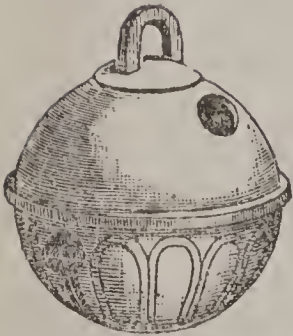
BELDAM, *n. běl'dām* [F. *belle*, handsome; *dame*, lady]: *anciently*, a good lady—*now*, an old noisy woman; a hag.

BELEAGUER, *v. bě-lē'gēr* [Dut. *belegeren*, to besiege; AS. *be*; Ger. *belagern*, to besiege—from *lager*, a camp]: to besiege; to surround a place with an army so as to prevent any one escaping from it. **BELEA'GUERING**, *imp.* **BELEAGUERED**, *pp. bě-lē'gèrd.* **BELEA'GUERER**, *n. -ēr*, 'one who beleaguers or besieges.—*SYN.* of 'beleaguer': to besiege; encompass; block up; invest; environ.

BELEM, *bā-lēng'*: town of Portugal, on the right bank of the Tagus, 2 m. s.w. of Lisbon, of which it may be said to be a fashionable suburb. It has an iron foundry, a custom-house, and quarantine establishment, a tower defending the entrance of the river. It is historically interesting as the place whence Vasco da Gama set sail on his voyage of oriental discovery. It was taken 1807, Nov., by the French, the royal family of Portugal embarking from its quay for Brazil as they entered. In 1833 it was occupied by Dom Pedro's troops. Pop. 5,000.



Belfry at Bruges.



Bell.—Ancient Crotal.



Belladonna (*Atropa belladonna*):
a, Flower; b, Fruit.

BELEM—BELFAST.

BELEM', or PARA, *pá-rá'*: city of Brazil, on the right bank of the Para, the most southerly arm of the estuary of the Amazon. See PARA.

BELEMNITE, n. *běl'ēm-nīt* [Gr. *belemnītēs*, a kind of stone—from *bel'emnon*, a dart]; interesting genus of fossil cephalopodous *Mollusca*, type of a family called *Belemnitidæ*, to the whole of which the name B. is generally extended, closely allied to the *Sepiadæ*, or Cuttle (q.v.) family. No recent species of B. is known: fossil species are very numerous, and are found in all the oolitic and cretaceous strata from the lowest lias to the upper chalk, some of which are filled with myriads of their remains. These remains are generally of the shell alone, which is now known to have been an internal shell, entirely included within the body of the animal, like that of the cuttle. The shell, as seen in the



Belemnites pistiliformis.

most perfect specimens, is double, consisting of a conical chambered portion (the *phragmocone*), inserted into a longer, solid, somewhat conical or tapering, and pointed sheath. The space between the phragmocone and sheath is occupied either with radiating fibres or conical layers. The chambers of the shell are connected by a tube (*siphuncle*), so that the animal probably had the power of ascending and descending rapidly in the water. Its arms are known, from some singularly perfect specimens, to have been furnished with horny hooks; and these it probably fixed upon a fish, and descended with its prey to the bottom, like the hooked Calamary (q.v.) of the present seas. Remains of an ink-bag, like that of the cuttle, have been found in the last and largest chambers of the B.; but remains of this chamber, which must have contained all the viscera of the animal, are very rarely preserved, the shell having been very thin at this part. The part most commonly found, and generally known by the name of belemnite, is the solid *mucro*, or point into which the sheath was prolonged behind the chambered shell. These have received such popular names as Arrowheads, Petrified Fingers, Spectre-candles, Picks, Thunder-stones, etc., from their form, or from the notions entertained of their nature and origin. Belemnites appear to have been of very different sizes: in some of the largest, the mere *mucro* is 10 inches long, and the entire animal, with its arms outstretched, must have been several feet in length. BELEMNITIDÆ, n. plu. *běl'ēm nīt-ī-dē* [Gr. *eidos*, resemblance]; extinct group of dibranchiate, shell-less cephalopods, comprising the belemnites and their allies.

BEL-ESPRIT, n. *běl-es-prē'* [F. *bel*, fine; *esprit*, spirit]: a fine spirit; a man of wit.

BELFAST, *běl'fast*: a seaport, seat of justice of Waldo co., Me., on Penobscot Bay, about 30 m. from the sea. It

BELFAST.

is the terminus of one division of the Maine Central railroad, and is by that road 130 miles n.e. of Portland. Resting on the slope of a hill, it commands a magnificent view over a wide expanse of water. It has an excellent harbor, deep enough for the largest ships. A large portion of the inhabitants are engaged in trade, ship-building, and navigation. It has the court-house, half a dozen churches, several weekly newspapers, a high school, two banks, and very many manufactories of different kinds. Incorporated 1853. Pop. (1890) 5,294; (1900) 4,615.

BELFAST, *běł-fást'*: chief town of the county of Antrim, and province of Ulster, Ireland. This great seaport stands at the embouchure of the Lagan, at the head of Belfast Lough, 12 m. from the Irish Sea, 101 n. of Dublin, 36 n.e. of Armagh, 130 s.w. of Glasgow, and 150 n.w. of Liverpool. The site is chiefly on an alluvial deposit not more than 6 ft. above the sea-level, reclaimed from the marshes of the Lagan. On the land-side, it is picturesquely bounded by the ridges of Divis (1,567 ft. high), and Cave Hill (1,185 ft.). The general aspect of B. is indicative of life and prosperity, exhibiting the trade and manufacture of Glasgow and Manchester, with far less than their smoke and dirt. Many streets, especially in the White Linen Hall quarter, are well built and spacious. The mercantile quarter lies chiefly near the extensive and well-built quays. The manufactories are mostly on the rising ground on the n. and w. of the town. Numerous villas sprinkle the n. shores of the bay, as well as the elevated suburb of Malone to the s. Of the churches of B., above 30 are Presb., about 20 Episc., 15 Meth., and 8 Rom. Cath. Queen's College was opened 1849. The Presb. College had the power of granting degrees in theology conferred on it 1881. The Royal Academical Institution and the Government School of Art also are important. There are numerous hospitals and banks. The Customs, Inland Revenue, and Post-office have large buildings, and the Town-hall is extensive. The Botanic Gardens occupy 17 acres. B. is the chief seat of the trade and manufactures of Ireland, and is second only to Dublin as an Irish port. The staple manufactures are linen and cotton. The linen manufacture dates from 1637. Cotton-spinning by machinery dates from 1777, linen from 1806. The other chief branches of industry are linen and cotton-weaving, bleaching, dyeing, calico-printing, and iron founding. There are many flour and oil mills, chemical works, breweries, alabaster and barilla mills, saw-mills, shipbuilding, rope, and sail-cloth yards. The iron-shipbuilding yard on Queen's Island employs more than 2,000 hands. The inland trade is carried on by the Lagan, the Ulster canal, and three railways. The harbor has recently undergone extensive improvements, adding 25 acres of area to the dock accommodation, and a mile of quayage, making B. one of the first-class ports of the United Kingdom. Before 1866 there were only two tidal docks; but since four new docks and a tidal basin have been opened. On these a sum of £369,927 was expended. In 1894 the total tonnage entered and cleared at B., excluding the vessels

BELFORT—BELFRY.

engaged in coasting trade, was 493,429. In 1894, fourteen newspapers were published in B. The town has an unhappy notoriety for riots between Orangemen and Rom. Catholics, such as that of 1880, July. B. is governed by a corporation of 10 aldermen—one being mayor—and thirty councilors. Since 1885, it returns 4 members to parliament. B. was destroyed by Edward Bruce in the 14th c., but became an important town since 1604, receiving a charter 1611. In the great civil war, the inhabitants at first joined the parliament, but afterward became royalists. Pop. (1821) 37,000; (1851) 103,000; (1871) 174,412; (1881) 208,122; (1891) 255,950; (1901) 349,180.

BELFORT, or **BEFORT**, *bā-fōr'*: town in France, cap. of the French remnant of the dept. of Haut-Rhin. From 1870 till 1879 this remnant (234 sq. m.), taking its name from the town, was called the *Territoire de B.*, and consisted of those portions of Haut-Rhin which, seized by Germans during the war of 1870-1, were restored to France by the preliminaries of peace arranged at Versailles, 1871, Feb. 26. The strategical importance of B. was recognized by France on its cession by Austria, 1648, and it was fortified by Vauban. At the outbreak of the war between France and Germany, 1870, B. was a fortress of the first rank; and as such maintained, from 1870, Dec. 3, till 1871, Feb. 16, a gallant defense against the German troops. It then capitulated, the defenders being permitted to march out with all the honors of war. B. was besieged also by the allies, 1814. It has a brisk trade. Pop. (1901) 32,567; of territory, nearly 100,000.

BELFRY, n. *běl'frī* [F. *beffroi*, a watch-tower—from OF. *berfroï*—from M. H. G. *bercfrīt*, a watch-tower: mid. L. *belfrēdus*]: formerly a tower for warlike purposes, either of offense or defense (see **BEFFROI**); now used only for the part of a steeple or building where a bell is hung—*belfry*, so named from its resemblance to such a tower; a bell-tower or turret; usually forming part of a church or other building, but sometimes detached from it—as at Evesham and Berkeley, England, and more frequently in Italy. See **CAMPANILE**. Where a church was built in a deep glen, the belfry was perched on a neighboring height, as at St. Fève and elsewhere in Cornwall, and at Ardelach and Auldbar in Scotland. At this last place, the bell was hung upon a tree, as was common in Scotland at the close of the 17th



Belfry or Bell-gable, Idbury, Oxfordshire.

c. Where the B. consists of a mere turret, it is often called a *bell-gable* or *bell-cote*, and is placed on the w end of the church; a smaller one being sometimes placed at the e. end, which is for the sanctus bell, for which reason it is placed over the altar. When the burghs began to rise into importance after the 12th c., they asserted their right to have bells to call the burghers together for council or for action. Thus detached belfries arose in the heart of towns. At a later date they often became part of the *maison de ville*, or town-house, as at Glasgow and Aberdeen, Scotland; at St. Quentin and Douai, France; and at Brussels, Belgium.

BELGÆ, *bēljē*: name given by Cæsar to the warlike tribes which in his time occupied that one of the great divisions of Gallia which comprised part of the basin of the Seine, the basin of the Somme, of the Scheldt, of the Maas, and of the Moselle, which itself belongs to the basin of the Rhine. Their country was level, containing no mountains of any height, except the Vosges in the south. The name seems to have originally designated several powerful tribes inhabiting the basin of the Seine, and to have been afterwards used by Cæsar as a general appellation for all the peoples n. of that river. These B. were, in all probability, chiefly of Celtic origin, but within their territories were to be found both pure and mixed Germans.

When south Britain was invaded by Cæsar, he found that B. from the opposite shores of Gaul had preceded him, and were settled in Kent and Sussex, having driven the aborigines into the interior. The B. in Britain resisted for nearly a century the Roman power, but were finally forced to yield to it. Cæsar regarded them as German, but they seem to have belonged rather to the Celtic portion of the Gallic Belgæ. Certainly, none of the names of their three chief towns are Germanic. *Aquæ Solis* (Bath) is Latin; *Ischalis* and *Venta* (Ilchester and Winchester), British.

BELGARD, n. *bēt-gård'* [F. *bel*, fair; *égard*, regard, respect]: in *OE.*, a kind regard; a sweet or soft glance.

BELGAUM, *bēl-gaum'*: chief city of a dist. of the same name in the presidency of Bombay; one of the principal military stations of the presidency; east of the dividing ridge of the West Ghauts, about 2,500 feet above the sea. Its lat. is 15° 50' n., and long. 74° 36' e., its distance to the n.w. of Dharwar being 42 m. B. has a fort, which, 1818, was taken from the Peishwa by the British. Under its new masters, the place has made considerable progress. It has a superior institution for the education of native youths, supported at once by the neighboring princes, the British government, and private individuals. The average annual rainfall at B. is about 36 inches. In 1848, the citizens spontaneously subscribed a considerable sum for the complete reconstruction of their roads and lanes—a liberality which, besides drawing forth a supplementary grant of public money, roused the emulation of adjacent towns and villages. Pop. (1890) 40,737. The district of BELGAUM has 4,656 sq. m.; pop. (1890) 1,013,261.

BELGIAN—BELGIOJOSO.

BELGIAN, a. *běljĩ-ǎn*, or BELGIC, a. *běljík*: of or from BELGIUM, *běljĩ-ǎm*, a country of Europe lying north of France: N. an inhabitant of.

BELGIOJOSO, *bel-jo-yo'so*: town of Lombardy, Italy, pleasantly situated in a fruitful plain between the Po and the Olona, 9 m. east of Pavia. It has a fine aqueduct and castle, in which Francis I. spent the night previous to the disastrous battle of Pavia, in which he was made prisoner. The Austrian general Gyulai made B. his headquarters after his defeat at Magenta, 1859, June 4-5. Pop. 4,000.

BELGIOJOSO, CHRISTINA TRIVULZIO, Princess of: 1808-71; b. Milan; daughter of the Marquis Jerome-Isodore of Trivulzio, distinguished in the military annals of France and of Italy. She is an author, and a brilliant figure in society. The princess married (1824) Prince Emilius of Barbican and Belgiojoso, and went to live in Paris, not venturing to establish herself at Milan, then under the dominion of Austria. As this princess was no less remarkable for her lofty mind and ardent love for Italy and for liberty, than for her personal graces, her house soon became the rendezvous of the most eminent politicians and literary characters. In 1848 she hastened to Italy, then for a short time free from the foreign yoke, and raised at her own expense a corps of volunteers; but the victories of Radetsky constrained her once more to expatriate herself, and her property was sequestrated. She afterwards made a tour through Asia Minor, and, without abandoning any of her liberal views, freely rallied, like most Italian republicans of 1848, to the popular government of Victor Emanuel. The Princess of B. has published a number of works, which have given her good rank as a writer. Among them, are: *Essay on the Formation of the Catholic Dogma* (1846, 4 vols.); *Reminiscences of Exile* (1850); *Asia Minor and Syria, Recollections of Travels* (Paris, 1858, 8vo); *Scenes from Turkish Life* (Paris, 1858, 12mo); *History of the House of Savoy* (1860); *Reflections on the Present State of Italy and on Its Future* (1869). Balzac thought he recognized in this great female artist and republican, that duchess of San-Severino of whom Stendhal (Marie Henri Beyle) made the heroine of *The Carthusian Nun of Parma*.

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BELGIUM, *běljě-ŭm*: one of the smaller European states, consisting of the southern portion of the former kingdom of the Netherlands (as created by the Congress of Vienna). B. is the most densely populated country in Europe, 539 to the sq. m., and in Brabant over 900.

Geography and Statistics.—Belgium lies between lat. 49° 30' and 51° 30' n., long. 2° 33' and 6° 6' e.; between France and Holland, the North Sea and Prussia. Its greatest length from n.w. to s.e. is 173 English m.; its greatest breadth from n. to s., 112 English m.; 11,373 sq. m. The pop. by census of 1900 was :

PROVINCES.	Area, sq. miles.	Pop.
Antwerp (Anvers).....	1,093	819,159
Brabant.....	1,268	1,263,535
Flanders } West.....	1,249	805,236
} East.....	1,158	1,029,971
Hainaut.....	1,437	1,142,954
Liège.....	1,117	826,175
Limbourg.....	931	240,796
Luxembourg.....	1,706	219,210
Namur.....	1,414	346,512
Total.....	11,373	6,693,548

PRINCIPAL CITIES AND TOWNS, 1900.

CITIES AND TOWNS.	Pop.	CITIES AND TOWNS.	Pop.
Brussels (including sub- urbs).....	563,893	Seraing.....	38,468
Antwerp.....	278,093	Tournai.....	35,327
Liège.....	160,246	Courtrai.....	33,495
Ghent.....	162,291	Namur.....	31,610
Mechlin.....	56,509	Ostend.....	40,575
Verviers.....	49,353	St. Nicholas.....	31,603
Bruges.....	53,083	Alost.....	29,723
Louvain.....	42,824	Mons.....	26,989
		Charleroi.....	25,112

Physical Aspect.—B. is, on the whole, a level and even low-lying country; diversified, however, by hilly districts. In the s.e., a western branch of the Ardennes highlands makes its appearance, separating the basin of the Maas from that of the Moselle, but attains only the moderate elevation of 2,000 ft. In Flanders the land is so low, that in parts where the natural protection afforded by the downs is deficient, dikes, etc., have been raised to check the encroachments of the sea. In the n.e. part of Antwerp, a naturally unfertile district named the Campine, and composed of marshes and barren heaths, extends in a line parallel with the coast. The once impassable morasses of the *Morini* and the *Menapii*, which stayed the progress of Cæsar's legions, are now drained, and converted into fertile fields, surrounded by dense plantations, which make the land at a distance look like a vast green forest.

Hydrography, Climate, Agriculture, etc.—The abundant water-system of B. is chiefly supplied by the rivers Scheldt and Maas, both of which rise in France, and have their embouchures in Holland. At Antwerp, the Scheldt, which, like the Maas, is navigable all through Belgium, is 32 ft. deep, and about 480 yards wide. Its tributaries are the Lys, Dender, and Rupel. The Maas, or Meuse, re-

ceives in its course the waters of the Sambre, the Ourthe, and the Roer. These natural hydrographical advantages are increased by a system of canals which unite Brussels and Louvain with the Rupel, Brussels with Charleroi, Mons with Condé, Ostend with Bruges and Ghent, and this last place with Terneuse. According to the resolution passed by the government, 1842, the long postponed project of cutting canals through the Campine district was commenced, and has been very advantageous to agriculture. A large portion of the Campine seems destined to perpetual barrenness—a dreary, silent, irreclaimable waste; but wherever it has been possible to rescue a patch from the stubborn heath or the relentless sand, there agricultural colonies have been planted, and cornfields shine, and pastures brighten the heart of the immemorial wilderness. The climate of B., in the plains near the sea, is cool, humid, and somewhat unhealthful; but in the higher s.e. districts, hot summers alternate with very cold winters. April and November are always rainy. These varieties of climate are favorable to a greater variety of produce than the neighboring country of Holland can supply. The Ardennes districts yield a large supply of wood; while the level provinces raise all kinds of grain—wheat, rye, barley, oats, etc., leguminous plants, hemp, flax, colza, tobacco, hops, dye-plants, and chicory. Belgium contains nearly 7,276,000 acres, of which almost one-third is in corn crops, rather more than one-eighth is meadow and pasture, one-sixth is woods and forests, and less than 600,000 acres are waste or water. Some hundreds of acres are devoted to vineyards, but the wine produced is inferior. The forests of Ardennes abound in game and other wild animals. Good pasturage is found on the slopes and in the valleys of the hilly districts, and in the rich meadows of the low provinces. Gardening occupies not less than 130,000 acres; indeed, it has been said that the agriculture of B. is gardening on a large scale, so carefully and laboriously is every inch of soil cultivated. The spade is still the principal instrument used. In the Campine, the care of bees is very productive, and the cultivation of the silk-worm is encouraged. The coast fisheries employ about 400 boats. The breeding of horses is an important industry, for which B. is famous. The exports of these animals (1894) amounted to \$4,480,010. A large number of horned cattle and sheep also are bred.

Geology.—The geological formations of B. are closely associated with those of France and Britain. The greater portion of the country is covered with *Tertiary deposits*. A line drawn across the course of the Scheldt, by Mechlin, along the Demer and Maas, will have on its n. and n.w. aspect a track of tertiary deposits, bounded n. by the sea. In these tertiary strata the different geological periods are fully represented; but only the second, containing the Pleiocene deposits, is rich in fossils. The *Secondary deposits* occupy an extensive tract in the centre of Belgium, between the Scheldt and the Demer. The most important district, economically, is the s.w., consisting of *Palæozoic rocks*—Silurian, Devonian, and Carboniferous. These

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beds have a very complicated structure, from the numerous and extensive flexures and folds that they have undergone, and these are often accompanied with great upward shifts, by which beds of many different ages are brought to the same level.

Mineral Products.—B. is rich in minerals, which, next to its abundant agriculture, constitute the chief source of its national prosperity. The four provinces in which they are found are Hainault, Namur, Liege, and Luxembourg. They include lead, copper, zinc, calamine, alum, peat, marble, limestone, slate, iron, and coal. Lead is wrought, but only to a small extent, in Liege; copper in Hainault and Liege; manganese in Liege and Namur; black marble at Dinant; slates at Herbemont; and calamine principally at Liege. But these products are insignificant compared to the superabundance of coal—from anthracite to the richest gas coal—and iron, in which B. ranks next to England. In 1901 B. had 219 coal mines open, employing 132,749 persons, and producing 23,463,000 tons, value \$81,694,000. In the same year the metallic mines produced over 200,000 tons of iron ore, 2,500 of pyrites, 18,000 of calamine, 2,000 of blende, 3,000 of sulphuret of lead, and 450 of manganese. These mines employed over 1,400 workmen. There were 17 pig-iron, 38 blast furnaces, 47 iron, and 18 steel plants in operation; 121 sugar manufactories, and 270 distilleries.

The modern industrial character of the Belgians may be traced back to a very early period, even to the time of the Romans, who noticed the love of traffic prevailing in the Celtic districts of *Gallia Belgica*. This characteristic has remained steadfast. It is impossible not to recognize in the cloth-weaving *Atrebates* the ancestors of the industrious race who gradually extended themselves to the e. and n. of Belgium. During the early commerce of Europe, when trade was secure only within walled towns, Flanders was the principal seat of productive industry; and its recent separation from Holland has been indirectly favorable to the development of its internal resources. A state which, like B., begins its career under a burden of debt, which is shut in between nations that possess important ports and colonies, and which is peopled by races not yet sufficiently blended to constitute a perfect nationality, must, before all other things, develop its internal, material resources. This has been well understood in Belgium. Since the commencement of its independent career, it has devoted its attention almost exclusively to those branches of industry and commerce by which its future greatness must be supported.

Manufactures.—The chief manufactures are linen, woolen, cotton, silk, lace, leather, and metals. The great seats of the linen manufacture—recently revived after a long depression—are Courtray and Bruges, in West Flanders; Ghent, in East Flanders; Brussels, in Brabant; Mechlin, or Malines, in Antwerp; and Tournay, in Hainault. The number of linen pieces annually produced is about 900,000. The lawn and damask fabrics of Bruges are cele-

brated, as well as the lace made in and near Brussels, Malines, Louvain, and Bruges, which sometimes commands a price of \$200 per yard. But the Belgian hand-spun yarn, though superior in quality, cannot maintain its ground against machinery. Verviers, Liege, Dolhain, Ypres, Doperinghe, Limbourg, Bruges, Mons, Thuin, and Hodimont are centres of the woolen manufacture. Ypres alone employs 50,000 workmen in this branch of industry. Brussels and Tournay have large carpet manufactures, and Hainault supplies considerable hosiery. The principal manufactures of cotton are at Ghent and Lokeren, in East Flanders; Bruges and Courtray, in West Flanders; Malines, Louvain, and Anderlecht, in Brabant; Tournay and Mons, in Hainault; and also at Antwerp. The separation of B. from Holland had at first a prejudicial effect on this as on other trades; but the opening of the navigation of the Scheldt, the intersection of the country by railways and canals, and, in consequence, the rapid and extensive communication with other countries, have revived the activity of the cotton trade, which now gives employment to between one and two hundred thousand workmen. Maastricht, which belongs to Holland, is one of the chief seats of manufactures of leather; but this trade is carried on also at Limbourg, Liege, Stadelot, Namur, Dinant, and especially at Bruges and Ghent. The manufacture of gloves has made great progress in recent years. Metallurgy also has rapidly increased in productiveness since 1816, when Cockerill introduced into B. the English method of smelting iron with coke. The principal seats of the metal manufacture are Liege, Namur, Charleroi, Muns, and their neighborhoods. There are large ordnance foundries at Liege and Malines, and celebrated makers of firearms and machinery in Liege; nail-making at Charleroi; tinware, etc., at Liege and in Hainault; wire and brass factories at Namur; zinc manufactures at Liege; lead and shot factories at Ghent; the gold and silver goods of Brussels and Ghent may also be noticed as important branches of Belgian industry. Flax is one of the most extensive and valuable products of B., no fewer than 400,000 persons being employed in its culture and preparation. Besides these, there are the straw-bonnet manufacture in the neighborhood of Liege; the paper fabrics of the provinces Liege, Namur, and Brabant; the glassworks of Hainault, Namur, Val-St.-Lambert, and Brabant; the porcelain, etc., of Tournay, Brussels, Mons, and Ghent; and sugar-refineries at Antwerp, Bruges, Ostend, Ghent, etc. Steam-engines have been common in the several manufactories of B. for many years.

The natural wealth and industrial resources of B. have always been modified by the political relations of the country. In the middle of the 13th c., B., with Bruges as its chief seat of manufactures, had surpassed all its neighbors in industry, and had established a flourishing commerce with the Italians. After the discovery of America, Antwerp took the place of Bruges, and was regarded as a northern Venice. But the unhappy period of

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Spanish oppression and the war in the Netherlands deeply depressed Belgian commerce, which suffered still more at the peace of Westphalia, when Holland monopolized the navigation of the Scheldt. The river was again opened at the close of the 18th c., when the French had invaded the Netherlands, and Napoleon caused the harbor of Antwerp to be restored and enlarged. At the cost of Amsterdam, Belgian commerce received a new impulse by the union of B. with Holland, as settled by the Congress of Vienna; but scarcely were hopes revived, when the revolution of 1830 changed the prospects of the country. The treaty signed in London, 1839, Apr. 19, gave to Holland the right to levy a toll of two shillings and sixpence per ton on all vessels navigating the Scheldt. The privilege of navigation on the inland waters between the Scheldt and the Rhine was purchased by B. for an annual payment of \$250,000. In 1839, June, this privilege was virtually taken away by the government of Holland, and in 1843, with additional expense to B., the new treaty of navigation was ratified by both parties. During this crisis preceding the development of a free commerce, B. had not neglected her internal resources. The Société de Commerce de Bruxelles, the Banque de Belgique, and other associations for the extension of trade, had been formed; and 1834, May 1, the government adopted the scheme for a railway-system the most complete of any on the continent. The centre of the Belgian network of railways is Malines, whence lines are carried out in all directions. The n. line goes to Antwerp and its harbor; the w., by Ghent and Bruges, to Ostend; the s.w., by Brussels and Mons, to Quiévrain and the borders of France, not far from Valenciennes; and the e. by Louvain, Tirlement, Liege, Verviers, and extending to the confines of Prussia. There were in 1895 open for conveyance in B. 2,820 m. of railway lines; of these 2,025 m. were in the hands of the state, and the rest were worked by companies. The cost of the permanent way and buildings of these lines has been about \$91,400 a mile. The net revenue at present is stated to be \$7,540 a mile. The working of the post-office in B. was, in 1894, as follows: Private letters, 105,197,611; printed papers, 82,263,614; post-cards, 42,502,135; newspapers, 103,449,177. In 1894, there were in that country 836 post-offices, 973 telegraph stations; the total length of telegraph lines was 3,928 m., the length of wire 19,564 m. The importations and exportations aggregated \$1,080,194,240. The trade with the United States was as follows: importations to B. \$30,305,146, increase \$7,483,668; exportations from B. \$9,782,012; increase \$1,739,857. During the year ending 1891, Dec. 31, the declared value of exports from the district of Brussels to the United States was \$2,801,436, increase \$58,818.84; and from the Charleroi agency \$1,642,-212.86, decrease \$272,622.18. The debt of B. 1895 was \$420,921,464.93.

In 1894, B. had 223 coal mines employing 117,103 persons and producing 20,535,000 tons, valued at \$36,345,480;

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the metallic mines produced 311,222 tons of iron ore, valued at \$300,618, and employed 1,581 men. There are 1,598 quarries employing 28,977 workmen. The manufacture of iron engaged 48 active works and 371 puddling furnaces, employing 13,654 men; the combined tonnage of pig and manufactured iron, steel ingots, and rails aggregated 2,018,866 tons valued at \$32,609,510.

The intellectual improvement of B. has not kept equal pace with its material prosperity. The lack of political independence, which has forced the best energies of the country into foreign centres of activity, and the variety and confused mixture of dialects, have retarded the growth of the national intellect, and the formation of national individuality. An independent national literature, acting as the bond of a pure national unanimity, was not possible, under such unfavorable conditions, to which may be added the facilities afforded for supplying the people with cheap reprints of foreign works. The Flemish element—the most important—seems indeed to have become conscious of its capabilities in respect to literature; but a genuine expression of the entire Belgian mind will become possible only when the Walloon element also begins to develop a freer form of speech with its own peculiar modes of thought. The Royal Acad. of Arts and Sciences at Brussels is at the head of several other unions for scientific purposes. Among the most celebrated names in Belgian literature and science are—Quetelet in mathematics, Altmeyer the historian, Fetis the musical critic, Conscience the Flemish poet and novelist, Willems the philologist, and Baron and Moke in literary history and criticism. Painting and architecture formerly flourished in the wealthy old towns of Flanders; but after the brilliant epoch of Rubens and his pupils, a long period of dullness followed. In modern times, a revival of art has taken place, as shown by the names of the painters, Wappers, De Keyser, Gallait, De Biefve, Verboekhoven, etc.; the sculptors, W. Geefs, Simonis, Jehotte, Fraikin, etc.; the engravers, Calamatta, Brown, and Meunier; and the medalists, Wiener and Hars.

The Belgian school-system suffered for more than ten years under the freedom of teaching allowed by the constitution, which was made use of chiefly by the wealthy Rom. Cath. clergy. The consequence was that education assumed a divided and sectarian character. Since the state, however, has exercised a general superintendence over the universities, gymnasia, and elementary schools, a higher style of education has prevailed. The two universities of Ghent and Liege, united with a school of architecture and mining; ten national schools (*Athénées*), in which a classical is combined with a commercial education; upwards of 50 schools preparatory to these (*Ecoles moyennes*); two seminaries for teachers at Lierre and Nivelles, besides the superintendence now exercised by the state over the institutions formerly maintained by communes and provincial corporations, and, above all, over the primary schools—all this forms a sufficient counterpoise to the numerous schools supported by private individuals and religious bodies among the latter

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may be noticed the Catholic Univ., of Louvain, founded 1836, and conducted under strict ecclesiastical discipline; the free Univ. of Brussels; and the gymnasia of the Jesuits at Namur, Brugelette, Brussels, and Liege. Journalism in B. has been greatly extended by the abolition of the stamp-duty (1848), and 343 newspapers are now published, including 59 daily papers; but only a few have obtained a proper degree of respectability and influence.

Population and Religion.—The population of B. is of mixed German and Celtic origin. The Flemings (of Teutonic stock) and Walloons (Celtic in origin), distinguished by their peculiar dialects (see FLEMISH LANGUAGE: WALLOONS), are still conspicuous among the pure Germans, Dutch, and French. The French language has gained the ascendancy in educated society and in the offices of government; but the Flemish dialect prevails numerically in the proportion of 9 to 8. The *Rom. Catholic religion* is the prevailing form. There are only about 14,000 or 15,000 Protestants and 3,000 Jews. The supreme Rom. Cath. dignitaries of B. are the Abp. of Mechlin, and the five diocesan bishops of Bruges, Ghent, Tournay, Namur, and Liege.

The *government* of B. is a limited constitutional monarchy, established in its present form by the revolution of 1830. The legislative body consists of two chambers—senate, and representatives. A responsible ministry, with the king as president, is at the head of all public affairs, and its measures are carried into effect by the governors of the several provinces. The ministry includes departments for home affairs, foreign affairs, finance, justice, public works, and war. The administration of justice retains the forms of French jurisprudence. In 1887 the revenue of B. was \$62,135,119 and the expenditure \$61,559,364; 1901, the revenue was \$100,158,100; expenditure \$99,507,060; imports \$728,120,000; exports \$647,880,000.

The standing army of B. is formed by conscription, to which every healthy man who has passed his nineteenth year is liable. Substitution is allowed. The legal period of service is ten years, but five of these are passed in the reserve. According to laws of 1870 and 1873, the strength of the army is to be 114,000 men on the war footing, and 47,000 in times of peace. The importance of B. in a military point of view affords a reason for the maintenance of fortifications at Antwerp, Ostend, Nieuport, Ypres, Tournay, Mons, and other places. See ARMIES.

History of Belgium to 1830.—In the time of the Romans, the name *Gallia Belgica* was given to the southern Netherlands lying on the confines of Gaul and Germany. It was peopled by Celtic and German tribes. The latter were predominant in Batavia and Friesland, and, under the rule of the Franks in the 5th and 6th c., gained the ascendancy also in the s. districts. Until the close of the 11th c., the feudal system, which arose at the fall of the Carolingian dynasty, prevailed in the Netherlands, where the several s. provinces were made duchies and counties. The county of Flanders, superior to all the others in industry and commerce, maintained, during a long struggle, its independence against

France; and, in 1385, when the male line of the Counts of Flanders expired, was annexed to the powerful House of Burgundy, which, in the beginning of the 15th c. gained possession of all the other provinces of the Netherlands. The rulers of Burgundy aimed at founding a powerful united state between France and Germany, and therefore endeavored to repress the free republican spirit which manifested itself in the rapidly rising towns. The work of establishing unlimited sovereignty was interrupted by the fall of Charles the Bold, and the partial division of his territories; but was continued by the Emperor Charles V., the grandson of Emperor Maximilian, and Maria, the heiress of Burgundy—through the latter of whom the Netherlands passed into the possession of the House of Hapsburg. After the abdication of Charles, these provinces passed into the hands of Philip II., and by the law of primogeniture, should have remained united with Spain. But scarcely had the peace of Château-Cambresis (1559) put an end to the encroachments of France, when the religious disputes of the Reformation, and the despotic measures of Philip, excited in the provinces a long and bloody war for civil and religious freedom, which ended in the independence of the Northern or Teutonic Netherlands, while in the southern or more Celtic provinces (now included under B.), both the sovereignty of Spain and the rule of the Rom. Cath. church continued. In 1598, B. was ceded by Philip II. to his daughter Isabella, wife of the Archduke Albert, when it became a distinct and independent kingdom. Several measures for the better regulation of internal affairs, especially in the administration of justice, and for the revival of industry, which had been injured by the unenlightened policy of Philip, were projected. Unfortunately, Albert died childless, 1621, and B. fell back into the hands of Spain, and became involved in the wars attending the decline of the Spanish monarchy. Peace was concluded chiefly at the cost of Belgium. By the treaty of Pyrenees (1659), the counties of Artois, Thionville, and other districts, were given to France. Subsequent conquests by the same powerful neighbor secured at the peace of Aix-la-Chapelle (1668), the possession also of Lille, Charleroi, Oudenarde, Courtray, and other places. These were partly restored to B. at the peace of Nimeguen; but as a compensation, Valenciennes, Nieuport, Cambray, St. Omer, Charlemont, and other places were given up, and only partially regained by B. at the peace of Ryswick, 1697. After the conclusion of this treaty, at the close of the reign of Charles II. of Spain, some endeavors were made to create prosperity in B. by a new system of taxation and customs, and by the construction of canals, to counteract the injury done to its commerce by the closing of the navigation of the Scheldt; but these projected improvements were interrupted by the Spanish War of Succession, which was not concluded until the peace of Utrecht, 1713. By this treaty, B. was given to Austria, Holland retaining the privilege of garrisoning the most important fortresses on the French frontier, and of exercising a monopoly of the navigation of the Scheldt.

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The 'Belgian Commercial Company' at Ostend, founded by Charles VI., 1722, fell in 1731—another sacrifice to the cupidity of Holland. During the Austrian War of Succession (1744), almost the whole country fell into the hands of the French; but was peaceably restored to Austria by the treaty of Aix-la-Chapelle (1748).

B. remained undisturbed by the Seven Years' War, and during the long peace following the treaty of Aix-la-Chapelle, prosperity was restored. Especially during the mild reign of Maria Theresa of Austria, measures of public improvement were promoted by Prince Charles of Lorraine, governor of the Belgian provinces. The reign of Joseph II., son and successor of Maria Theresa, began in disputes with Holland. The latter country consented to the abolition of the *Barrière-contract*, in consequence of which several important fortresses were demolished, though the emperor failed in his endeavor to make free the navigation of the Scheldt. But the errors of his internal administration were the serious feature of his policy. By his innovations, he offended the religious sympathies of the people, and violated the legal privileges of the states, of which he had made the strict preservation a condition of obedience. In a short time, discontent openly manifested itself. The Austrian authorities were attacked; Brabant refused to pay taxes; while the more violent fled into Holland, and organized an armed expedition. Returning, they were joined by numbers of the inhabitants, defeated the foreign troops, captured Brussels, and in the beginning of 1790 declared their independence. In the course of the year, however, the Austrians succeeded in regaining possession of the country. The privileges of the states as they existed at the close of the reign of Maria Theresa were restored, and at the same time stringent measures were adopted to prevent any renewal of disturbances. But this state of peace was soon interrupted by the outbreak of the war of the French Revolution. B. was conquered by Pichegru in the campaign of 1794, and subsequently united to France by the treaties of Campo-Formio and Luneville. It then shared in the fortunes of France during the Consulate and the Empire; received the *Code Napoleon*; and in all political relations was organized as a part of France. After the fall of Napoleon, it was united with Holland, and its boundaries defined by the Congress of Vienna, 1815, May 31.

At the introduction of the new constitution, the want of national unity in language, faith, and manners was strikingly manifested by the two great parties—the Dutch Protestant population, with their commercial habits, on the one side, and the Rom. Cath. population, of agricultural and manufacturing B., on the other. These natural and unavoidable obstacles to the political harmony of the new kingdom were increased by the unfair treatment which B. experienced. All the more important provisions of the constitution had a regard chiefly to the interests of Holland. Repeated attempts were made to supersede the Belgian language by the Dutch in all affairs of adminis-

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tration and jurisprudence, though the former were the more numerous people; the privileges of the Belgian clergy were abridged; the poorer classes were severely taxed; while the government was almost exclusively composed of Dutchmen. In 1830, among seven ministers, there was only *one* Belgian; among 117 functionaries of the ministry of the interior, only 11 Belgians; among 102 subordinates of the ministry at war, only 3 Belgians; and among 1,573 officers of infantry, only 274 Belgians. B. was politically divided into two classes—the Liberal and the Rom. Catholic. Both of these strongly resented and opposed the encroachments of Holland: the Liberals, from a desire to preserve the national secular institutions; the Rom. Catholics, from a desire to preserve the national church. The government became alarmed at their increasing hostility; and ultimately, when their patriotic fusion rendered its position critical, it made several concessions; the supremacy of the Dutch language, and the taxes on the necessities of life, were abolished. Efforts were also made to conciliate the Rom. Catholic priesthood. But these concessions came too late, and were, in consequence, construed only as signs of weakness. In 1828–9 it was attempted to coerce and intimidate the opposition, by prosecuting the liberal or democratic leaders. This only fanned the fire of discontent, which was already burning fiercely in the hearts of the Belgians, and panting for an opportunity to break out into visible insurrection.

From 1830 to the present time.—The French revolution of 1830 afforded the desired occasion. On the king's birthday (1830, Aug. 24), several riots occurred in various towns of Belgium. At this period, however, the idea of separation from Holland does not seem to have presented itself consciously to the Belgian mind; the deputies who were sent to the Hague to state the causes of the general dissatisfaction merely insisted on its possessing a separate administration, with the redress of particular grievances. But the dilatory and obstructive conduct of the Dutch deputies in the states-general assembled at the Hague, Sept. 13, exasperated the Belgian nation beyond measure. A new and more resolute insurrection instantly took place. In seven days, the people had deposed the old authorities, and appointed a provisional government. Prince Frederick, the son of the sovereign, who commanded his father's troops, was compelled to retreat from Brussels to Antwerp, having suffered considerable loss. On Oct. 4, B. was declared independent by the provisional government, composed of Messieurs Rogier, D'Hooghvorst (commandant of the civic guard), Joly, an officer of engineers, and the secretaries Vanderlinden and De Coppin; Count Felix de Mérode, Gendebien, Van de Meyer, Nicolai, and De Potter, the democratic leader. They also announced that a sketch of the new constitution was in course of preparation, and that a national congress of 200 deputies would shortly be called together. Freedom of education, of the press, of religious worship, etc., were proclaimed. Here and there, the new liberty showed a tendency to

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become anarchic; but its excesses were speedily suppressed; and at the national congress of Nov. 10, out of 187 votes, only 13 were in favor of a democratic government. Meanwhile, the London congress had assembled, and after mature deliberation, recognized the severance of the two kingdoms as a *fait accompli* (Dec. 10). The Belgian congress, on its assembly, appointed Baron Surlet de Chokier provisional regent, but on July 9 elected Prince Leopold of Saxe-Coburg king, who entered Brussels on the 21st of the same month, and subscribed the laws of the constitution. This prince proved himself one of the wisest monarchs of modern times. He died 1865, and was succeeded by his son, Leopold II., the present king of Belgium. Holland refused to acknowledge the validity of the decision of the London congress, and declared war against B., which was speedily terminated by France and England—Holland securing that B. should annually pay 8,400,000 guilders as interest for its share in the national debt of Holland. The latter country, however, was still dissatisfied, and ventured to employ force. England and France were compelled to interfere. The blockade of the coast of Holland brought the Dutch to terms, and the dispute was closed by a treaty signed in London, 1833, May 21.

The monarchy of B. is hereditary, according to the law of primogeniture, but with a perpetual exclusion of females and their descendants. The legislative power is vested in the king and two chambers; and the king has the power to dissolve either the senate or the house of representatives, or both. The number of deputies, 1884, was 138, sent by 41 electoral districts. Electors must be Belgians by birth or naturalization, must have attained 25 years of age, and pay taxes, each to the amount of abt. \$8.25. Members of the chamber of representatives require no property qualification. The senate consists of half the number of representatives, and is elected by the same constituency, but for 8 years instead of 4. A senator must be 40 years of age, and must pay at least 1,000 florins of direct taxes. The budget is annually voted by the chambers, and the contingent of the army is also subject to their annual vote.

In 1842, a law was carried in both chambers, by which it was enacted that the parishioners should be bound to provide elementary schools, according to the wants of the population, in all places where the want of education was not fully supplied by voluntary means. The main regulations for the universities were effected by the ministry of De Theux, 1835; but the organization of intermediate instruction (that is, between the *Ecoles Primaires* and the universities) was postponed, as involving some delicate party interests, until 1850; and even then was not concluded in a way satisfactory to the Rom. Cath. clergy.

In 1838, Holland and B. seemed likely to engage in war once more. According to the 'twenty-four articles' of the 'definitive treaty,' B. was under obligation to give up Limbourg and a part of Luxembourg during the above-

mentioned year. This it now refused to do, and put its army on a war-footing; but its obstinacy finally gave way to the unanimous decision of the five great powers.

After 1840, the opposition of the Rom. Cath. to the liberal party became more and more decided. The elections of 1841, June 8, were attended with great excitement, and it was a significant fact that the liberal candidates re-elected were everywhere returned by large majorities, while in the principal towns where Rom. Catholics were returned, only small majorities appeared. Meantime, however, commerce was thriving under a wise and liberal policy.

In 1845, July, the liberal Van de Weyer, at the head of a new administration, endeavored to confirm the so-called 'union' of Rom. Catholics and liberals. But he had scarcely asserted the prerogative of the civil power in matters pertaining to the question of education in the 'intermediate schools,' when he was forsaken by his colleagues, who acted under the influence of the Rom. Cath. priesthood. In 1846, March, a purely Rom. Cath. ministry was formed under the presidency of De Theux. This was an anachronism, for the elections of 1845 had secured a victory for the liberals.

The elections of 1847 at last brought to a close the system of government in subservience to the church. A new liberal ministry was formed by Rogier and others, whose programme of policy promised the maintenance of the independent civil authority in all its subordinate functions; a budget favorable to the public with regard to duties on provisions; and measures to promote the interests of agriculture. The institution of numerous agricultural and commercial schools, normal *ateliers*, popular libraries, and other means used for raising the working-classes, were followed by most beneficial results. The revolutionary tempest of 1848, however, menaced the tranquillity of the country; but the king, at the outbreak of the catastrophe in France, promptly declared himself ready to retain or to surrender the crown of B. according to the decision of the people. This frank and ready declaration had a successful result in strengthening the party of order, while it disarmed even those most disaffected to the crown.

In 1848, July, the result of the elections was found to be a great strengthening of the liberal-constitutional party. In 1850, the educational question was supposed to be settled on soundly liberal principles; but since then there has been a keen and continued struggle between progressionists and ultramontanes, the balance of power shifting from time to time. Nevertheless, the country has steadily grown in prosperity, and constitutional principles have been strengthened. In 1880, the jubilee of the state was held, and 1885 the Congo Free State was recognized by the powers: see CONGO, INDEPENDENT STATE OF.

See Wauter's *La Belgique, Ancienne et Moderne* (1874); Genonceaux, *La Belgique* (1879); Hymans, *La Belgique Contemporaine* (1880); the *Annuaire Statistique*; and the his

tories by Juste (5th ed. 1868); Moke (7th ed. 1881); and Hymans (5 vols. 1880).

BELGOROD, *běl-gō-rōd'* (Russian, *Bejelgorod*, 'White Town'): town in the Russian govt. of Kursk; on the Donetz, lat. 50° 40' n., long. 36° 35' e. B., which derives its name from a chalk-hill in the vicinity, is divided into two—the old and the new towns. It is built chiefly of wood, is an archbishop's see, has numerous churches, two monasteries, manufactories of leather, soap, etc., and considerable trade in wax, bristles, and hemp. Three important fairs are held here during the year. Pop. about 17,000.

BELGRADE, *běl-grād'*: the ancient *Singidunum*, styled by the Turks *Darol-Jihad*, the 'House of the Holy War,' and in German, *Weissenburg*: an important fortified and commercial town, capital of Servia; at the confluence of the rivers Save and Danube. The name B. is derived from the Slavonic *bielo*, 'white,' and *grad* or *grad*, a 'fort' or 'town.' B. is divided into four parts—the fortress, a very strong place, which, situated on the tongue of land between the rivers, commands the Danube; the Water Town, also well protected by walls and ditches, on the n.; the Raitzen Town on the w.; and the Palanka on the s. and e. of the citadel. B. still has one mosque. The royal palace, the residence of the metropolitan, the national theatre, and the public offices are the principal buildings. Opposite the theatre is a bronze monument (1882) to Prince Michael III. B. has manufactories of arms, cutlery, saddlery, silk goods, carpets, etc., and is the seat of the chief Servian authorities. It is the entrepôt of the trade between Turkey and Austria. The position of B. has made it the chief point of communication between Constantinople and Vienna, and the key to Hungary on the s.e. It has consequently been the scene of many hard contests. The Greeks held it until 1073, when it was captured by the Hungarian king, Salomon. After this it passed through the hands of Greeks, Bulgarians, Bosnians, and Servians, and these last proprietors sold it, in the beginning of the 15th c., to the emperor Sigismund. In 1442, it was unsuccessfully besieged by the Turks, with a large and vain outlay of time and money; and when stormed (1456, Jul. 14), was retaken from the Turks by the heroism of Hunyades and Capistrano. In 1522, it was taken by the Sultan Soliman II. In 1688, it was stormed and taken by Maximilian, Elector of Bavaria; but in 1690 was recaptured by the Turks, when the Christian garrison had been reduced to 500 men. In 1693, B. was vainly besieged by the Duke of Croy; and in 1717, the citadel surrendered to Prince Eugene, after he had defeated an army of 200,000 Turks, with a loss to them of 20,000 men. But in 1739, B. again changed owners, the Turks obtaining it without a shot. In conformity with the treaty then signed, the fortifications were demolished. In 1789, it was again taken by the Austrians under General Laudon; but by the treaty of peace, 1791, was restored to the Turks. From 1806 to 1813 it was in the possession of the insurgent Servians;

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and though on the founding of the principality of Servia, B. was made the capital, the citadel remained in the hands of the Turks till 1867. In that year the Porte was constrained by diplomacy to yield up this important possession to the Servian government. Pop. (1901) 69,097.

BELGRADO, *běł-grá'do*, GIACOMO: 1704–89; b. Udine: Italian Jesuit, at first prof. of belles-lettres at Venice; and later teacher of mathematics and physics at the Univ. of Parma, where also he was appointed court mathematician. He was member of the Institute of Bologna, and of nearly all the learned societies of Italy. He left many works upon the mathematical and physical sciences, nearly all in Latin. The most important is: *Ad disciplinam mechanicam, nauticam et geographicam, Acroasis critica et geographica* (Parma, 1741, quarto).

BELGRAVIAN, a. *běł-grā'vī-ăn* [*Belgravia*, a fashionable quarter of London]: pertaining to Belgravia, or fashionable life.

BELHOMME, *běł-om'* or *bā-lom'*, DOM HUMBERT: 1653–1727; b. Bar-le-Duc: French Benedictine friar and preacher. He became abbot (1703) of Moyenmoutier, and enriched that abbey with one of the largest and best selected libraries of Lorraine. This savant left: *Historia Mediani monasterii in vorayo* (Strasburg, 1724, quarto), a work containing very curious details concerning the ancient Mayors of the Palace and about the dukes of Lorraine and of Alsace: *Chroniques diverses*, from Hidulphe to the commencement of the 11th c.; and *Fragment de la Chronique de Jean de Bayon*, wherein we find documents useful to consult for the history of Lorraine in the 11th and 12th centuries.

BELIAL, n. *bě'li-ăl* (though more accurately *bě-li'ăl*) [Heb. unprofitableness]: worthlessness; wickedness. The Scripture phrase, 'Sons of B.,' was originally, in all probability, a mere Hebrew figurative expression denoting worthless or dissolute persons. At a later period, the idea of evil which the word embodies seems to have been elaborated into a personality, a spirit of evil; and B. is supposed by some to correspond to the Pluto of the Greeks.

BELIBEL, v. *bě-lī'bl* [AS. *be*; F. *libelle*, a bill, a lampoon—from L. *libellus*, a little book]: to traduce; to libel; to slander.

BELIE, v. *bě-lī'* [AS. *beleccan*; Ger. *belügen*, to tell lies of one: AS *be*, *leógan*, to lie]: to show to be false; to falsify; to slander; to feign; to pretend. BELYING, imp. *bě-lī'ing*
BELIED, pp. *bě-līd'*.

BELIEF.

BELIEF, n. *be-lēf'* [AS. *geleīfa*, belief: Goth. *galaubjan*, to believe: Ger. *glauben*, to believe]: trust in a thing as true; credit; persuasion. BELIEVE, v. *bē-lēo'*, to trust in as true; to credit; to be persuaded of. BELIEV'ING, imp.: ADJ. in the condition of one who believes: N. the act of putting trust in as true. BELIEVED, pp. *bē-lēvd'*. BELIEV'ER, n. one who believes; *colloquially*, a Christian. BELIEVABLE, a. *-ā-bl*, able to be believed. BELIEV'INGLY, ad. *-lī*.—SYN. of 'belief': credit; trust; faith; persuasion; conviction; confidence; doctrine; opinion.

BELIEF: a word sufficiently intelligible in common speech, but with which various subtle problems and protracted controversies have been connected in mental and moral philosophy.

1. It has been a matter of no small difficulty with mental philosophers, to give an exact rendering of the state of mind denominated belief, or to specify the exact import, test, or criterion of the act of believing. It is easy to comprehend what is meant by an idea or a notion, as when we speak of having the idea of a rose, its shape, color, odor, etc.; but when we make the further step of affirming our belief in the sweetness of the rose, it is not so easy to describe the exact change that has come over the mind in so doing. In all belief, there must be something intellectual, something thought of, or conceived by the mind; hence there has been a disposition to recognize the believing function as one of the properties of our *intelligence*. We believe that the sun will rise and the tides flow to-morrow: here are undoubtedly implied intellectual conceptions of the sun, his rising, and of to-morrow; of the sea, its movements, and so on. But the question comes, what is the difference between conceptions believed in as these are, and conceptions quite as clear and intelligible that are not believed? as the notion that the fluctuation of the sea on the shores of Britain is the same as on the shores of Italy. It is not to the purpose to say that in the one case we have knowledge and evidence, and not in the other; for what is wanted is to define the change that comes over us, when what is a mere notion or supposition passes into a conviction; when a day-dream or hypothesis comes to take rank as truth.

To answer this inquiry we must bring in a reference to *action*; for although belief connects itself with our intelligence, as now mentioned, it has action for its root and ultimate criterion. Coming up to the edge of a frozen lake, and looking at the thickness of the ice, we believe that it will bear to be trodden on, and accordingly walk across it. The meaning or purport of the believing state here is, that we do not hesitate to trust our safety to the fact believed. The measure of our confidence is the measure of our readiness to act upon our conviction. If the frozen lake lie between us and our destination, we feel elated by the certainty of arriving there, which we should not under a weak or imperfect trust in the goodness of the ice. Belief, therefore, although embodied in ideas, or intellectual conceptions, is in reality a moral power, operat-

ing on our conduct, and affecting our happiness or misery. Belief in coming good cheers us almost as much as if it were already come; a like strength of conviction of approaching evil is to the same degree depressing; 'the devils believe and tremble.' These two tests—readiness to act according to what we believe, and influence on the mental tone—effectually separate the state in question from mere notions, fancies, or suppositions, unaccompanied with credence. We have firm confidence in the food we eat being able to nourish us; we exert ourselves to procure that food, and when we feel hungry, and see it before us, we have the mental elation arising from a near and certain prospect of relief and gratification. If there be anything that we work languidly to procure, and feel little elated by being near or possessing, our conviction is proved to be feeble as to the utility of that thing, or as to the pleasure we shall derive from it. So, in employing means to compass ends, as when we sow that we may reap, work that we may obtain abundance, study that we may be informed—we have a certain confidence in the connection between the means and the ends; in other words, we are energetically urged to use those means, and having done so, we have the feeling as if the end were already attained.

Even in cases furthest removed in appearance from any action of ours, there is no other criterion. We believe a great many truths respecting the world, in the shape of general propositions, scientific statements, affirmations on testimony, etc., which are so much beyond our own little sphere, that we can rarely have any occasion to involve them in our own procedure, or to feel any hopeful elation on their account. We likewise give credit to innumerable events of past history, although the greater number of them have never any consequences as regards ourselves. Yet, notwithstanding such remoteness of interest, the tests now mentioned must apply; otherwise, there is no real conviction in any one instance.

There is a distinction, first characterized by Aristotle, between potentiality and actuality (*posse* and *esse*), which truly represents two different states of mind of real occurrence. Besides the actual doing of a thing, we know what it is to be in a state of *preparedness* to act, before the emergency has arisen, or while it is still at a distance and uncertain. The thirsty traveller, not knowing of a spring where he may drink, is debarred from the act that his condition prompts him to, but he is in an attitude of mind that we call being ready for action the moment the opportunity arrives. We all carry about us a number of unexecuted resolutions, some of them perhaps remaining so to the last, for want of the occasion. They are not, on that account, to be set aside as having no part in our nature; they are genuine phases of our activity. So it is with many things believed in by us, without any actual prospect of grounding actions, or staking our welfare, upon such things. When we say we believe that the circumference of the globe is 25,000 miles, if not repeating an empty

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sound, or indulging an idle conception, we give it out that if any occasion arise for acting on this fact, we are ready to do so. If we were about to circumnavigate the earth, we should commit ourselves to this reckoning. Should there be any hesitation on the point when the time for action came, the professed belief would be shown to be hollow, no matter how often we heard the statement, or repeated it, with acquiescence. The genuineness of conviction is notoriously open to question, until an opportunity of proceeding upon it occurs. Very often we deceive ourselves and others on the point—whether we are in full potentiality or preparedness in some matter of truth or falsehood. There is a very large amount of blind acquiescence in, or tacit acceptance of, propositions which never become the subject of any real or practical stake. These beliefs falsely so called confuse the line of demarcation between mere intellectual notions and states of credence or conviction. Of this nature is the acceptance given by the mass of mankind to the statements they are accustomed to hear from the better-informed class respecting the facts of science and the transactions of history. They do not dispute those statements; and yet they might be little disposed to commit their serious interests to such facts. So with regard to the religious creed handed down from parent to child. Some are found believing, in the full import of the term; others, opposing no negative in any way, yet never perform any actions, or entertain either hopes or fears, as a consequence of their supposed acceptance of the religion of their fathers; their belief, accordingly, must be set down as a nonentity.

2. There is considerable interest attached to the inquiry into the *sources* or operating causes of this efficacious attribute of our active nature. What are the influences that determine us to adopt some notions as grounds of action and elements of hope or depression, in preference to others? The common answer to this question is the possession of evidence, of which two kinds are reckoned by some schools—namely, experience and intuition; while others recognize experience alone, and reject the intuitive as a sufficient foundation of belief.

As regards the actual sources of men's convictions, it is undeniable that many things are credited without any reference to experience. The existence of superstitions is an example. So the partialities arising out of our likings to particular persons, and the undue depreciation of the merits of those whom we dislike, present instances equally removed from the criterion of experience. It is evident, therefore, that men do not abide by that criterion, even granting that they ought to do so. Accordingly, it is one of the tasks of the mental philosopher to specify the portions of our constitution that give birth to false, mistaken, or unfounded beliefs; and in so doing he indicates, first, certain intuitive impulses connected with our active nature; and secondly, our various feelings, or emotions. Whether the intuitive be a source of authentic beliefs, may be a question; there can be no question as to its being

a genuine source of real convictions. We have a decided tendency from the first to believe that the present state of things will continue, and that the absent resembles the present. He that has always seen water liquid, cannot at first be convinced that it is ever or anywhere solid. We have always a great difficulty in surmounting the primitive impulse to consider other men's minds as exactly like our own. It is the tendency of the uncultured human being to over-generalize; and experience comes as a corrective, often very painful to submit to. Then, again, as regards the emotions, it is found that every one of these, if at all strong, is liable to blind us to the realities of the world. Fear is a notable example. Under a fright, a man will believe in the approach of the direst calamities. Superstition is, for the most part, the offspring of men's fears. The effect of a strong emotion is to exclude from the mind every fact or consideration except those in keeping with itself. Intense vanity so lords it over the current of the thoughts and the course of the observations, as to present to one's mind only the very best side of the character. A fit of self-abasement and remorse will work the contrary effect.

It is plain enough, therefore, that we are very often in the wrong, by trusting to our intuitive tendencies, and as often so under our emotions; while we are as ready to act, and to derive comfort or the opposite, under false beliefs, as under the very soundest that we can ever arrive at. The practice of life points to *experience* as the check to wrong believing. If we find on trial that another man's feelings differ very much from ours in the same circumstances, we stand corrected, and are perhaps wiser in future. So, in science, experiment is the ultimate canon of truth. There prevails, notwithstanding, in one school of philosophy, comprising the majority of metaphysical philosophers in Britain and in Germany and France, besides many in America, the opinion that experience is not the only source even of *sound* or true beliefs. There are those who contend for an *a priori* origin of scientific first principles; such, for example, as the axioms of mathematics. 'Things that are equal to the same thing are equal to one another,' is one of the class about which this dispute reigns. There is also a doctrine current that the law of causation has an authority derived from intuition. Another class of beliefs relates to matters altogether beyond experience; such is the metaphysical doctrine of the infinite. These various convictions—*a priori*, as they are called, being grounded solely in the internal impulses of the human mind—are all open to one common remark. It must be conceded that some intuitive beliefs are unsound, seeing that we are obliged to reject a greater or less number because of their being flatly contradicted by our experience. But if any have to be rejected in this way, why may not all be; and what criterion, apart from experience, can be set up for discriminating those that we are to retain? Man undoubtedly has boundless longings; and the doctrine of the infinite corresponds in a manner to

these. But in actual life we find very few of our desires fully gratified, not even those most honorable to the human mind, such as curiosity, the passion for self-improvement, and the desire of doing good. How, then, are we to ascertain which of the longings carries with it its own necessary fulfilment? Moreover, the intuitive tendencies are exceedingly various in men; and all cannot be equally true. On the other side, however, it may be said that neither is man's *experience* always a certain guide: the *experience* of the tropical savage assures him that water is never solidified: the experience of the whole ancient world taught it that the sun and stars revolved around the earth. It may be that intuition and experience need to be combined as sources of belief, which belief, though not guaranteed as *absolute* truth, may yet have all the qualities of a truth *relative to our powers and our circumstances*, sufficient therefore as the practical basis of our conduct.

Testimony, properly reckoned one of the sources of belief, is, in its operation, partly founded on an intuitive tendency, and partly on experience. We at first believe whatever we are told; the primitive phase of our nature is credulity; the experience that we soon attain to of untrue statements puts us on our guard, and we learn to receive testimony under some circumstances, and from some persons, and not in all cases indiscriminately.

3. *Responsibility for Belief.*—A lengthened controversy arose some time ago, on the saying of Lord Brougham, that 'man is no longer accountable to man for his belief, over which he has himself no control.' Reduced to precise terms, the meaning of this assertion is: a man's belief being involuntary, he is not punishable for it. The question therefore arises, *how far* is belief a voluntary function? for it is known that the will does to some extent influence it.

What a man shall see when he opens his eyes is not in his own power; but the opening of the eyes is a voluntary act. So, after listening to a train of arguments on a certain dispute, we might be irresistibly inclined to one side; but, supposing us to live in a country where the adhesion to that side is criminal, and punished severely, we might be deterred from hearing or reading anything in its favor. To this extent, the adoption of a belief is voluntary. The application of strong motives of the nature of reward or punishment is sufficient to cause one creed to prevail rather than another, as we see in those countries and in those ages where there has been no toleration of dissent from the established religion. The mass of the people have been in this way so fenced in from knowing any other opinions, that they have become conscientiously attached to the creed of their education.

When the question is asked, therefore, whether punishment can control men's beliefs, and not their professions merely, all history answers in the affirmative, as regards religious and political creeds, on which the majority of mankind, being insufficient judges of themselves, are led by tradition and by education. But in matters of daily

practice, where the simplest can judge as well as the wisest, the case is altered. No severity of threat could bring a man into the state of believing that his night's rest was hurtful to him; he might be overawed into saying that it was so, but he would never act out his forced affirmation, and therefore he would show that he did not believe in it.

If the sentence of Lord Brougham is held to imply that all beliefs are beyond the power of external motives, and therefore that rewards and punishments can go no further than making outward conformity, it must be pronounced erroneous. For granting that motives cannot have a direct efficacy on the state of a man's convictions—which cannot be conceded in all cases—yet the *indirect* influence is so great as to produce the unanimity of whole nations for centuries in some one creed. But if it is only meant, that such indirect means *ought not* to be applied to sway men's convictions, this is merely a way of affirming the right of free thought and inquiry to all mankind, and the iniquity of employing force on such a matter.—On the subject of Belief generally, see Bain on the Emotions and the Will.

BELIKE, ad. *bě-lik'* [*be*, and *like*]: in *OE.*, probably; certainly; perhaps.

BELIME, v. *bě-līm'* [*be*, and *lime*]: to besmear with bird-lime.

BELISARIUS, *bel-ì-sā'ri-us* (in Slavonic, *Beli-tzar* 'White Prince'): abt. 505-564, March; b. Germania, Illyria: a heroic and loyal soldier, to whom the emperor Justinian was principally indebted for the glory of his reign. He first became conspicuous when he was appointed to the command of the eastern army of the empire, stationed on the confines of Persia, where, 530, he gained a victory over a Persian army nearly twice as large as his own. The historian Procopius was at this time secretary to B. In the following year, when the Persians had penetrated into Syria, intending to attack Antioch, B. being compelled by the impatience of his troops to offer battle at Callinicum, a town at the junction of the rivers Bilecha and Euphrates, was defeated, and in consequence recalled. This petulant injustice, however, did not weaken that principle of duty which ever controlled and inspired the great soldier. He still remained the firm supporter of his sovereign. In Constantinople, the strife of the two parties, styled respectively 'the green' and 'the blue,' had endangered the authority and even the life of Justinian; already a new emperor, Hypatius, had been elected, when B., at the head of the life-guards, attacked and slew, in the race-course, 30,000 of the green or anti-loyalist party, and thus restored tranquillity. Previous to this, he had married a wealthy but profligate woman, Antonina, whom he loved with the same blind uxoriousness that Marcus Aurelius exhibited towards Faustina. The only points in his history which are not edifying are those in which he yielded to her noxious

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solicitations. The military career of B. may be divided into two great epochs: the war against the Vandals in Africa, and the war against the Goths in Italy, which again subdivides itself into two campaigns, with an interval of four years between them. The first of these epochs was commenced by Justinian sending B., in 533, with an army of 15,000 men into Africa, in order to recover the provinces there held by the Vandal king, Gelimer. After achieving two victories, B. made the king a prisoner, seized his treasures, and after conquering Sardinia, Corsica, and the Balearic Isles, he brought him to Constantinople, where he appeared in a triumphal procession of the conqueror—the first that a subject had enjoyed since the days of Tiberius. The African Vandals never recovered from this overthrow. Medals were struck in B.'s honor; and 535, Jan. 1, he was invested with the dignity of 'consul,' and granted a second triumph, according to the old republican style. The second war was occasioned by the divisions existing in the royal family of the Ostrogoths, which induced Justinian to attempt to wrest Italy from the hands of the barbarians. In 535, B. conquered Sicily; and in the autumn of 536, he crossed over to lower Italy, where all the cities submitted to him except Naples, which he carried by storm. On Dec. 10 he entered Rome, having made an amicable arrangement with the inhabitants. As he found his forces not strong enough to contend with the Goths in open field, he allowed himself to be enclosed and besieged in Rome; after the defense had lasted a year, the Goths raised the siege. In 538, Narses had been sent with a reinforcement for the army in Italy; but some misunderstanding occurring between the two generals, they were prevented from relieving Milan, which, 539, was captured and devastated by Braias, nephew of the Gothic king, Vitiges. Consequently, Narses was recalled from Italy; and B., now placed at the head of both armies, refused to assent to a treaty proposed to King Vitiges by Justinian's ambassadors. Vitiges had persuaded the Persian king, Chosroes, to invade the eastern Roman territory. B. now drove the Goths back to Ravenna, which he captured, 540, with Vitiges himself. But before he could complete his conquest of the Goths, he was recalled by Justinian to Constantinople, where he soon appeared, bringing with him the king Vitiges, several Gothic chieftains, and the royal treasures. In 541–542, he was engaged in a campaign against the Persians, who had captured Antioch; but was again recalled, on account of slanderous representations made to the emperor, and the enterprise necessarily proved indecisive. His second great struggle with the Ostrogoths now begins. In 544, the barbarians, under Totila, again invaded and reconquered Italy. B. was sent against them, but with an unsufficient army. He, however, maintained his ground for five years, harassing the enemy by his skilful movements, and even succeeded so far as to regain possession of Rome. But, in spite of his repeated entreaties, no reinforcements

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were sent to him; and, 548, Scp., he gave up the command, his rival, Narses, being appointed in his place. After ten years of retirement, B. once more came forward at the head of an army hastily collected, and overthrew the Bulgarians, who had threatened Constantinople. Here this faithful servant, who at Ravenna had, in a spirit of noble loyalty unknown to the warriors in those selfish and ambitious times, refused the crown of Italy offered to him by the Goths, was at length accused of a conspiracy against Justinian, and imprisoned, 563, Dec.; but according to Malala and Theophanes, Justinian became convinced of B.'s innocence, and restored him, after six months, to all his honors.

The biography of B. has been treated with great license by writers of fiction, especially by Marmontel, who has represented the hero as cruelly deprived of sight, and reduced to beg for his bread in the streets of Constantinople. Tzetzes, a writer of the 12th c., states that, during his half-year's imprisonment, B. suspended a bag from the window of his cell, and exclaimed to those who passed by: 'Give an obolus to B., who rose by merit, and was cast down by envy!' but no writer contemporary with B. mentions this circumstance. Lord Mahon, in his *Life of Belisarius* (Lond. 1829), endeavors, but without success, to confirm the tradition, or rather the fiction, of B. being deprived of sight and reduced to mendicancy. This fiction supplies the subject of a fine picture by the French painter Gérard.

In figure, B. was tall and majestic; in disposition, humane and generous; pure in his morals, temperate in his habits, a valiant soldier, a skilful general, and, above all, possessed by a sublime spirit of loyalty to his sovereign.

BELIVE, ad. *bě-liv'* [*be*, and *live*]: in *OE.*, quickly; presently; immediately.

BELIZE: see BALIZE.

BELJU'RIE, or BAILJURIE: town of India, in the British dist. of Moradabad, N. W. Provinces, two m. n.w. from Kashipur. Pop. 1891 including part of Kashipur, over 10,000.

BELKNAP, *běl'năp*, GEORGE EUGENE: naval officer: 1832, Jan. 22—1903, April 7; b. Newport, N. H. He entered the U. S. navy as midshipman, 1847, Oct. 7; was promoted passed midshipman 1853, June 10; master 1855; lieut.-commander 1862, July 15; commander 1866, July 25. In 1856, Nov., he was engaged against the forts at the mouth of Canton river, China. In the Charleston harbor operations, 1862-64, he commanded the *New Ironsides*, and the *Seneca* and *Canonicus* during 1864; and assisted in the search for the *Stonewall Jackson*, Confederate iron-clad, in W. Indian waters. He was commended by Adm. Porter for his skill in handling the monitors. In 1867-8 B. was in command of the *Hartford*, of the Asiatic squadron. He was stationed at the Boston navy-yard 1869, was engaged in deep-sea soundings 1874, and was appointed capt. 1875, Jan. 25. He was appointed supt. of the naval observatory and promoted commodore 1885, June 2; promoted rear-admiral 1889, Feb. 12; and 1893 was pres. of the board of inspection and survey.

BELKNAP, JEREMY, S.T.D.: Congl. minister and author: 1744, June 4—1798, June 20; b. Boston. After graduating at Harvard 1762, he studied theology and taught school until 1767, Feb. 18, when he was ordained pastor of the First Chh. (Congl.), Dover, N. H. He was called to Boston 1787, Apr. 4, to take charge of the Federal St. Chh., and continued in this charge until his death. B. was a constant student from his boyhood, and accustomed to keeping notes of his reading.—The first published result being, *History of New Hampshire* (3 vols. 1784-92), in aid of which the N. H. legislature granted the author \$250. He received from Harvard the degree S.T.D., 1792, and was made an overseer of the college. He founded the Mass. Hist. Soc. 1790. In 1793 he published a life of Isaac Watts: and 2 vols. of *American Biographies* 1794-98, a collection of psalms and hymns having been issued by him 1795. He published also *The Foresters, an American Tale*, 1796. He wrote many essays on various subjects, particularly in opposition to the African slave-trade.

BELKNAP, *běl'năp*, WILLIAM WORTH: 1829, Sep. 22—1890, Oct. 20; b. Newburgh, N. Y.: soldier and cabinet minister. Having graduated at Princeton 1848, and thereafter studied law, he began practice at Keokuk, Io., 1851. He was elected to the Io. legislature 1857; at the outbreak of the war, he entered the army, and was commissioned major of the 15th Io. regt.; was in the actions at Shiloh, Corinth, and Vicksburg, and served under Sherman in the Atlanta campaign; was made brig.gen. 1864, July 30; brevet maj.gen. 1865, March 13. He was in the revenue service of the govt. thereafter till 1869, when Pres. Grant named him sec. of war. which office he held till 1876, March 7, when, having been impeached before the senate and tried on charges of official corruption—on which he was acquitted on the technical ground of lack of jurisdiction—he retired from public life.

BELL.

BELL, n. *bèl* [AS. *bellan*; Icel. *belja*, to sound loudly; *biälla*, an instrument for making a loud noise]: a hollow body producing musical sounds when struck; anything expanding mouth outwards like a bell, as the cups of flowers: V. to grow in the form of bells; to make a loud noise, said of deer. **BELLING**, imp. **BELLED**, pp. *bèld*. **BELL-FOUNDER**, one engaged in the making of bells. **BELL-BIRD**, a S. Amer. bird with an extraordinary bell-like note. **BELL-GLASS**, a glass vessel in the shape of a bell, used, when inverted, as a protection or cover against cold, etc., for plants. **BELL-HANGER**, one whose trade is to fit up bells in houses. **BELL-SHAPED**, in *bot.*, applied to a corolla when it bellies or swells out like a bell, as the Canterbury bells. **BELL-METAL**, a mixed metal for making bells, consisting of about three parts of copper and one of tin. **BELL-RINGER**, one who rings a bell. **BELL-MAN**, a town-crier. **BELL-WETHER**, *bèl-wèth'ér* [*bell*, and *wether*]: the wether or male sheep having a bell on his neck, and acting as the leader of the flock; a leader. **BELL, BOOK, AND CANDLE**, a phrase for execration, derived from the ceremonies of excommunication in the R. Cath. Ch. To **BEAR THE BELL**, to be the first or leader, as the foremost horse in a team, or a wether in a flock of sheep which wore a bell; to take the prize. To **SHAKE THE BELLS** [from the *bells* of a hawk]: in *OE.*, to affright. **BELL-FLOWER**, and **BLUEBELL**, names of flowers shaped like a bell. English **BLUEBELL** or **WILD HYACINTH** is the *Hyacin'thus non-scrip'tus* or *Endym'ion nūtāns*, ord. *Liliacēæ*. **BLUEBELL OF SCOTLAND**, or **HARBELL**, is the *Campan'ula rotun'difoliā*, ord. *Campan'ulacēæ*. **BELL-PEPPER**, n, the red pepper of gardens, *Capsicum gros-sum*. **BELL-WORT**, *bèl-wèrt*, any plant of the genus *Uvularia*. **DIVING-BELL**, a bell-shaped machine, or usually square, so constructed that a person can descend in it through water—used by workmen in laying foundations of piers on river or sea bottoms, and in descending to wrecks, etc. **BELLS**, n. plu. on *board a ship*, the half-hours of the watch, marked by striking a bell at the end of each. **BELL-CRANK**, a bent lever, used for changing a vertical into a horizontal motion. **BELL-METAL ORE**, a Cornish miner's term for sulphuret of tin, an ore consisting of tin and copper pyrites, and having a brilliant bell metal color. **BELL OF A CAPITAL**, the capital of a pillar denuded of the carved foliage, in which case it resembles the form of a bell reversed. **BELL-THE-CAT**, to endanger life and liberty in the heroic endeavor to do a desperate or noble act for the benefit of others; from the old fable in which a mouse advises hanging a bell on the cat's neck. **PASSING BELL**, *anciently*, telling a bell to scare away evil spirits from a person *in extremis*; the bell which called the priest to his last duty to the dying; the bell rung at a person's decease. **BELL-TENT**, a circular conical-topped tent.

BELL, *bèl*: a hollow body producing musical sound when struck; usually formed of a composition of copper and tin, called bell-metal. When the proper proportions of the two metals are fused together, the compound is poured into a mould. Authorities differ as to the best

proportions of the copper and tin. Some give 80 parts of copper to 20 of tin, or 4 to 1; others state the proportions as being 3 to 1. In the reign of Henry III. of England, it seems to have been 2 to 1; and the small bronze bells discovered by Mr. Layard in the palace of Nimroud, are found to contain 10 of copper to 1 of tin. Hand-bells are made often of brass, antimony alloyed with tin, German silver, real silver, and gold. The notion that in old



Queen Mary's silver-gilt Hand-bell.

times silver was mixed with bell-metal to sweeten the tone, is an error. Silver, in any quantity, would injure the tone. The quality of a bell depends not only on the composition of the metal of which it is made, but very much also on its shape, and on the proportions between its height, width, and thickness; for which the bell-founder has rules derived from experience, and confirmed by science. The pitch of a bell is higher the smaller it is. For a peal of four bells to give the pure chord of ground tone (key-note), third, fifth, and octave, the diameters require to be as 30, 24, 20, 15, and the weights as 80, 41, 24, 10. A less quantity of metal than is due to the calibre of the bell, though giving the same note, produces a meagre, harsh sound; and the real or fancied superiority in dignity of tone of some old bells is ascribed to a greater weight of metal having been allowed for the same note than modern economy would dictate. Bells have been cast of steel, some of which have had a tone nearly equal in fineness to that of the best bell-metal, but deficient in length, having less vibration. Some have been cast of glass, with considerable thickness of the material; and these give an extremely fine sound, but are too brittle to stand the continued use of a clapper.

From a remote antiquity, cymbals and hand-bells were used in religious ceremonies. In Egypt, it is certain that the feast of Osiris was announced by ringing bells; Aaron, and other Jewish high-priests, wore golden bells attached to their vestments; and in Athens, the priests of Cybele used bells in their rites. The Greeks employed them (*koda*) in camps and garrison; and the Romans announced the hour of bathing and of business by the *tintinnabulum*. The introduction of bells into Christian churches is usually ascribed to Paulinus, Bishop of Nola in Campania (400); but there is no evidence of their existence for a century later. That they were first made in Campania, is inferred from the name given to them—*campanæ*; hence *campanile*, the bell-tower. Their use in churches and monasteries

soon spread through Christendom. They were introduced into France about 550; and Benedict, Abbot of Wearmouth, brought one from Italy for his church about 680. Pope Sabinian (600) ordained that every hour should be announced by sound of bell, that the people might be warned of the approach of the *horæ canonicæ*, or hours of devotion. Bells came into use in the East in the 9th c., and in Switzerland and Germany in the 11th. Most of the bells first used in western Christendom seem to have been hand-bells. Several examples, some of them, it is believed, as old as the 6th c., are still preserved in Ireland, Scotland, and Wales. They are made of thin plates of hammered iron, bent into a four-sided form, fastened with rivets, and brazed or bronzed. Perhaps the most remarkable is that said to have belonged to St. Patrick, called the *Clog-an-eadhachta Phatraic*, or 'The bell of Patrick's Will.' It is 6 inches high, 5 inches broad, and 4 inches deep, and is kept in a case or shrine of brass, enriched with gems and with gold and silver filigree, and made (as an inscription in Irish shows) between the years 1091 and 1105. The bell itself is believed to be mentioned in the *Annals of Ulster* as early as 552. En-

gravings as well of the bell as of its shrine, with a history of both, by the Rev. Dr. Reeves of Lusk, were published at Belfast (where the relic is preserved) in 1850. Some of the Scotch bells, of the same primitive type, are figured and described in Mr. Joseph Anderson's *Scotland in Early Christian Times* (Rhind Lectures, Edin. 1881). The four-sided bell of St. Gall, an Irish missionary (died about 646) is still shown in the monastery of the city which bears his name in



St. Ninian's Bell.

Switzerland. Church-bells were suspended either in the steeples or church-towers, or in special bell-towers. They were long of comparatively small size: the bell which a king presented to the church of Orleans in the 11th c., and which was remarkable in its age, weighed only 2,600 pounds. In the 13th c., much larger bells began to be cast, but it was not until the 15th c. that they reached really considerable dimensions. The bell 'Jacqueline' of Paris, cast 1400, weighed 15,000 pounds; another Paris bell, cast 1472, weighed 25,000; the famous bell of Rouen, cast 1501, weighed 36,364 pounds. The largest bell in the world is the Great Bell or Monarch of Moscow, above 21 ft. in height and diameter, and weighing 193 tons. It was cast in 1734, but fell down during a fire in 1737, was injured, and remained sunk in the earth till 1837, when it was raised, and now forms the dome of a chapel made by

excavating the space below it. Another Moscow bell, cast 1819, weighs 80 tons. The Great Bell at Pekin, 14 ft. high, with a diameter of 13 ft., weighs $53\frac{1}{2}$ tons; those of Olmütz, Rouen, and Vienna, nearly 18 tons; that first cast for the New Palace at Westminster (but cracked), 14 tons; that of the Rom. Cath. cathedral at Montreal (cast 1847), $13\frac{1}{2}$ tons; 'Great Peter,' placed in York Minster 1845, $10\frac{3}{4}$ tons; 'Great Tom,' at Lincoln, $5\frac{1}{2}$ tons; the new Great Bell of St. Paul's, cast 1881, $17\frac{1}{2}$ tons, the largest in the United Kingdom. See Gatty's *The Bell* (1848); Stainer's *Great Paul* (1882).

From old usage, bells are intimately connected with the services of the Christian church—so much so, that apparently from a spirit of opposition, the Mohammedans reject the use of bells, and substitute for them the cry of the imaum from the top of the mosques. Associated in various



Great Bell at Moscow.

ways with the ancient ritual of the church, bells acquired a kind of sacred character. They were founded with religious ceremonies (see Schiller's ode), and consecrated by a complete baptismal service; received names, had sponsors, were sprinkled with water, anointed, and finally covered with the white garment or chrisom, like infants. This usage, as old as the time of Alcuin, is still practiced in Rom. Cath. countries. Bells had mostly pious inscriptions, often indicative of the widespread belief in the mysterious virtue of their sound. They were believed to disperse storms and pestilence, drive away enemies, extinguish fire, etc. A common inscription in the middle ages was:

Funera plango, fulgura frango, Sabbata pango,
Excito lentos, dissipo ventos, paco cruentos.

Among the superstitious usages recorded to have taken place in old St. Paul's Church in London, was the 'ringinge the hallowed belle in great tempestes or lightnings' (Brand's *Popular Antiquities*, vol. ii.). From this superstition possibly sprang the later notion, that when the great-bell of St. Paul's tolled (which it does only on the death of

a member of the royal family, or a distinguished personage in the city, it turned all the beer sour in the neighborhood—a fancy facetiously referred to by Washington Irving in the *Sketch Book*. It would seem that the strange notion that bells are efficacious in dispelling storms is by no means extinct. In 1852, the Bp. of Malta ordered the church-bells to be rung for an hour to allay a gale.

Church-bells were at one time tolled for those passing out of the world. It was a prevailing superstition that bells had the power to terrify evil spirits, no less than to dispel storms; and the custom of ringing what was called the *passing-bell* 'grew [we quote a writer in the *Quarterly Review*] out of the belief that devils troubled the expiring patient, and lay in wait to afflict the soul the moment when it escaped from the body. . . . The tolling of the passing-bell was retained at the Reformation; and the people were instructed that its use was to admonish the living, and excite them to pray for the dying.' But 'by the beginning of the 18th c., the passing-bell, in the proper sense of the term, had almost ceased to be heard. The tolling, indeed, continued in the old fashion; but it took place after the death, instead of before.' The practice of slowly and solemnly tolling church-bells at deaths, or while funerals are being conducted, is still a usage in various places, particularly as a mark of respect for the deceased. There is another use of the bell in religion, called the *pardon* or *ave bell*, abolished among Protestants. The pardon-bell was tolled before and after divine service, for some time prior to the Reformation, to call the worshippers to a preparatory prayer to the Virgin Mary before engaging in the solemnity, and an invocation for pardon at its close. Bishop Burnet has recorded the order of a bp. of Sarum, 1538, concerning the discontinuance of the custom. It runs thus: 'That the bell called the pardon or ave bell, which of longe tyme hathe been used to be tolled three tymes after and before divine service, be not hereafter in any part of my diocesse any more tollyd.'

The ringing of the *curfew-bell*, supposed to have been introduced into England by William the Conqueror, was a custom of a civil or political nature, and only strictly observed till the end of the reign of William Rufus. Its object was to warn the public to extinguish their fires and lights at eight o'clock in the evening. The eight o'clock ringing is still continued in many parts of England and Scotland.

As the liberty of public worship in places of meeting by themselves was yielded to dissenters, by the various governments of Europe, only with reluctance, the use of bells in chapels as a summons to divine service is not allowed except in the more enlightened countries. Speaking on this subject as referring to England, Lord Chief-justice Jervis, in giving judgment on a case tried at the Croydon assizes in 1851, says: 'With regard to the right of using bells in places of worship at all, by the common law, churches of every denomination have a full right to use bells, and it is a vulgar error to suppose that there is any distinction at the

BELL.

present time in this respect.' Throughout England and Scotland, however, comparatively few dissenting places of worship possess bells—still fewer have steeples. In towns and villages, the places of worship connected with the established church are commonly distinguished by some kind of belfry or bell-cote with bells. The ringing of these for divine service on Sundays, and on other occasions, forms the theme of many poetical allusions. The lines of Cowper will occur to recollection:

How soft the music of those village bells,
Falling at interval, upon the ear,
In cadence sweet! now dying all away,
Now pealing loud again, and louder still,
Clear and sonorous as the gale comes on.

On all that belongs to the playing of bells in belfries, the inventive genius of the Netherlands long since arrived at proficiency. In some of the church-towers of that country, the striking, chiming, and playing of bells is incessant; the tinkling called *ehimes* usually accompanies the striking of the hours, half-hours, and quarters; while the playing of tunes comes in as a special divertisement. In some instances, these tune-playing bells are sounded by means of a cylinder, on the principle of a barrel-organ; but in others, they are played with keys by a musician. The French apply the term *carillons* to the tunes played on bells; in some places, it is more usual to give the term *carillons* to the suites of bells which yield this kind of music. In this last sense, the tower of *Les Halles*, a large building at Bruges, is allowed to contain the finest *carillons* in Europe. There is a set of music-bells of this kind in the steeple of St. Giles's Church, Edinburgh. On these, tunes used to be played for an hour daily at certain seasons by a musician, who had a small salary from the civic corporation.

In many places the towers of churches are provided with peals of bells, the ringing of which is a well-known practice. Eight bells, which form an octave or diatonic scale, make the most perfect peal. The variety of *changes* or permutations of order that can be rung on a peal, increases enormously with the number of bells: 3 bells allow 6 changes; 4 bells, 24; 12 bells give as many as 479,001,600 changes. The ringing of peals differs entirely from tolling—a distinction not sufficiently recognized in those places where an ordinary ringing of bells is made to suffice alike for solemn and festive occasions. The merry peal almost amounts to an English national institution. It consists in ringing the peal in moderately quick time, and in a certain order, without interruption, for the space of an hour. Merry peals are rung at marriages (if ordered), and at other festive events, the ringers being properly paid, according to use and wont. The English appear to be fond of these peals, and the associations which they call up. They actually make bequests to endow periodical peals in their parish church-towers; leaving, for example, so much money to ring a merry peal for an hour on a certain evening of the week, or to commemorate victories, or some other subjects of national rejoicing, in all

time coming. One of the most celebrated peals of bells in London is that of St. Mary-le-Bow, Cheapside, which forms the basis of a proverbial expression meant to mark emphatically a London nativity—'Born within the sound of Bow-bells.' Brand speaks of a substantial endowment by a citizen for the ringing of Bow-bells early every morning to wake up the London apprentices. The ringing of bells in token of merriment is an old usage in England, as we learn from Shakespeare:

Get thee gone, and dig my grave thyself,
And bid the merry bells ring to thy ear,
That thou art crowned, not that i am dead.

Sometimes, in compliment to a newly opened church, efforts are made to furnish its belfry with the proper number of bells, and to endow it at once for a weekly merry peal. It is common for some of the humbler parishioners to form a company of bell-ringers, acting under the authority of the church-wardens. Some endowments for peals embrace a supper, as well as a money-payment to the ringers; and of course, in such circumstances, there is little risk of the merry peal falling into desuetude. The consequence is, that what with marriages, and other festive celebrations, and as a result of endowments, merry peals are almost constantly going on somewhere in the metropolis. In Lancashire, the art of playing on bells is cultivated with much enthusiasm and success. The bells are small, and arranged on a movable stand; they are struck by a small instrument which is held in each hand of the performer, and produce a sweet tinkling kind of music.

The custom of hanging bells on the necks of horses, cows, and other animals was in use by the Romans, and still survives: the poetical allusion of Gray—

And drowsy tinklings lull the distant folds—

will be called to remembrance. In some parts of England, as many as eight small bells, forming an octave, are attached to the harness of wagon-horses.

The *hanging of bells* in dwelling-houses, and ringing them by means of wires from the different apartments, is a modern invention, not known in England in the reign of Queen Anne. More recently, electric bells have been introduced. A galvanic battery requiring attention only at long intervals is used. From this an insulated wire goes to a 'press-button' in a room or lobby, thence to the bell and back to the battery to complete the circuit. The press-button makes contact when one requires to ring; at other times the current is broken. Beside the bell, there is an electro-magnet, with an arrangement by which a spring is attracted and released in rapid succession as long as the automatically interrupted current of electricity is passing. This spring carries a knob which strikes the bell as it oscillates to and fro. An index is used when the bell is rung by press-buttons from several rooms.

THE LIBERTY BELL: perhaps the most precious of our few historical relics, was cast by Lester and Pack, at

Whitechapel, London, bearing the inscription, 'By order of the Assembly of the province of Pennsylvania, for the State House in the City of Philadelphia, 1752. "Proclaim liberty throughout all the land to all the inhabitants thereof."'—Lev. xxv. 10.' On trial at Philadelphia, a crack was discovered, and it was recast there three times by Pass and Stow, and finally hung in the tower of the State House, 1753, June. It proclaimed the adoption of the Declaration of Independence 1776, July 4, and thereafter was rung to celebrate victories, and tolled at the death of revolutionary heroes. It was again cracked while being tolled in memory of Chief-Justice Marshall 1835, July 8: the crack spread, and it was forever silenced 1843, Feb. 22. It was exhibited at the New Orleans Exposition 1885, and at the World's Columbian Exposition at Chicago, where it had an enthusiastic public welcome 1893, Apr. 29, and was conveyed to its place on a car drawn by 13 horses and surrounded by a guard of honor.—Diameter at tip 48 in., thickness of sound-bow $3\frac{1}{4}$ in., key note (Amer. pitch) E; weight 2,080 lbs.; cost in London about \$500.

BELL, ALEXANDER GRAHAM: inventor: 1847, Mar. 3—
—————: b. Edinburgh; son of Alexander Melville B. He was educated in the High School and Univ. of Edinburgh; early became proficient in his father's and grandfather's system for removing impediments of speech; came to the United States 1872, and was appointed prof. of vocal physiology in Boston Univ.; and first exhibited his invention for transmitting sound by electricity at the Centennial Exhibition 1876. Since perfecting his telephone apparatus, he has applied himself closely to the introduction and maintenance of telephonic systems in all parts of the world, and to the defense of his patents in a costly and lengthy litigation. He described his invention of the photophone, by which he proposed to convey speech by a vibratory beam of light instead of a wire, before the Amer. Assoc. for the Adv. of Science in Boston 1880; made a fruitless effort to locate the bullet in Pres. Garfield's body by an improved induction balance 1881; and received the diploma and decoration of the Legion of Honor 1882.

BELL, ALEXANDER MELVILLE: educator: 1819, Mar. 1
—————; b. Edinburgh; son of Alexander B., inventor of a method for removing impediments in speech. He was educated by his father, was lecturer in the Univ. of Edinburgh and in New Coll. 1843-65, and in London Univ. 1865-70; removed to Canada 1870, and was instructor in Queen's Coll., Kingston, till 1877; was then appointed its register; and removed to the United States 1881. He greatly expanded his father's system; invented a method of instruction in orthoëpy for deaf-mutes. known as 'visible speech,' which is now successfully used in the leading deaf-and-dumb institutions of the world; and has published *Principles of Speech and Elocution* (Edinburgh 1849); *Popular Stenography*; *Visible Speech and Universal Alphabets*; *Line Writing on the Basis of Visible Speech*; *Faults of Speakers*; *The Standard Elocutionist*; *Lectures on Phonetics*; and *English Line Writing*.

BELL, ANDREW, D.D. 1753-1832, Jan. 28; b. St. Andrews: author of the 'Madras System of Education.' He was educated at the University of St. Andrews. Subsequently, he took orders in the Church of England; and after residing for some time in British America, was appointed one of the chaplains at Fort St. George, Madras. While here, he was intrusted by the directors of the East India Company with the management of an institution for the education of the orphan children of the European military. As he found it impossible to obtain the services of properly qualified teachers, he resorted to the expedient of conducting the school by the aid of the scholars themselves. Hence originated the far-famed 'MONITORIAL SYSTEM' (q.v.). In 1797, having on account of his health, returned to England, B. published a pamphlet entitled *An Experiment in Education, made at the Ma'e Asylum of Madras; suggesting a System by which a School or Family may teach itself under the Superintendence of the Master or Parent*. This pamphlet attracted little attention, until Joseph Lancaster, a dissenter, commenced to work upon the system, and gained for it public recognition. In 1803, Lancaster also published a tractate on education, recommending the monitorial system, as it was now called, and admitting B. to be the original inventor of it, an admission which he afterwards discredibly retracted. Lancasterian schools now began to spread over the country. The church grew alarmed at the successful results of the efforts made by dissenters to educate the poor, and resolved to be philanthropical ere it was too late. B. was put up against Lancaster; money was collected, and much emulation was excited. Fortunately, however, this rivalry produced beneficial effects. Later in life, B. was made a prebendary of Westminster, and master of Sherborn Hospital, Durham. He was also a member of various learned societies. He died at Cheltenham. He left (besides a valuable estate) £120,000 for the purpose of founding educational institutions in Edinburgh, Glasgow, Leith, Aberdeen, Inverness, Cupar, and St. Andrews. See Meiklejohn's *An Old Educational Reformer* (1851).

BELL, Sir CHARLES: 1774-1842, Apr. 28; b. Edinburgh; bro. of JOHN (q.v.). eminent surgeon, whose discoveries in the nervous system have given him a wide fame. In 1797, he was admitted a member of the Edinburgh College of Surgeons. In 1804, he went to London, and for some years lectured on anatomy and surgery. Admitted, in 1812, a member of the Royal College of Surgeons, London, he was elected one of the surgeons of the Middlesex Hospital, in which institution he delivered clinical lectures, and raised it to the highest repute. To obtain a knowledge of gunshot wounds, he twice relinquished his London engagements—the first time after the battle of Corunna, 1809, when he visited the wounded who were landed on the southern coasts of England—the other, after the battle of Waterloo, when he went to Brussels, and was put in charge of a hospital with 300 men. In 1824, he was appointed senior prof. of anatomy and surgery to the Royal College of Surgeons, and subsequently a member of the council. On the estab-

lishment of the London Univ., now University College, 1826, B. was placed at the head of their new medical school; but soon resigned, and confined himself to his extensive practice, chiefly in nervous affections. In 1831, he was one of the five eminent men knighted on the accession of William IV. In 1836 he was elected prof. of surgery in the Univ. of Edinburgh. He was a fellow of the Royal Societies of London and Edinburgh, and a member of other learned bodies. Author of various works on surgery and the nervous system, and editor, jointly with Lord Brougham, of Paley's *Evidences of Natural Religion*, B. was one of the eight distinguished men selected to write the celebrated Bridgewater Treatises, his contribution being on *The Hand, its Mechanism and Vital Endowments as evincing Design* (1834). Among his principal works are: *The Anatomy of the Brain explained, in a Series of Engravings*, 12 plates (Lond. 1802, 4to); *A Series of Engravings, explaining the Course of the Nerves* (Lond. 1804, 4to); *Essays on the Anatomy of Expression in Painting*, plates (Lond. 1806, 4to); posthumous edition, much enlarged, entitled *The Anatomy and Philosophy of Expression as connected with the Fine Arts* (Lond. 1844, 8vo); *A System of Operative Surgery*, 2 vols. (Lond. 1807-1809; 2d ed. 1814); *Dissertation on Gunshot Wounds* (Lond. 1814, 2 vols. 8vo); *Anatomy and Physiology of the Human Body*, 3 vols. (1816); various papers on the nervous system, which originally appeared in the *Philosophical Transactions*; *Exposition of the Natural System of the Nerves of the Human Body* (1824); *Institutes of Surgery* (Edin. 2 vols. 1838, 12mo); *Animal Mechanics*, contributed to the *Library for the Diffusion of Useful Knowledge* (1828); *Nervous System of the Human Body* (1830, 4to). See *Correspondence of Sir Charles Bell* (1870).

BELL, CHARLES H.: naval officer: 1798, Aug. 15—1875, Feb. 19; b. New York. He was made midshipman, U. S. N., 1812, June 12; was with Commodore Decatur 1813, and on Lake Erie with Commodore Chauncey 1814. Appointed lieut. 1820, he was wrecked on the schooner *Ferret* 1824, and saved after 21 hours' exposure. He assisted with the *Erie* in capture of a pirate at Guadaloupe 1829. In 1839 he commanded the brig *Dolphin* on the African coast, was promoted commander 1840, and 1844-46, in command of the sloop *Yorktown* captured 3 slavers: he was promoted capt. 1854. Being attached to the Mediterranean squadron 1860, he was ordered home, and for 3 years was in command of the Pacific squadron, and was appointed commodore 1862, July 16. During the latter part of the war he was on special duty on the James river; 1865, May, in command of the Brooklyn navy-yard; was retired with the rank of rear-admiral 1866, July 25.

BELL, GEORGE JOSEPH: Scottish lawyer: 1770, Mar. 20—1843, Sep. 23; b. Edinburgh; bro. of Sir Charles B. He was eminent in his profession, particularly in commercial law; was practically the author of the Scottish Judicature Act, was a clerk of the supreme court 1831, and chairman of the royal commission to examine into the state of the law 1833. He pub. several important works.

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BELL, HENRY: 1767, Apr. 7—1830, Nov. 14; b. Torphichen, Linlithgowshire, Scot.; fifth son of Patrick B., a mechanic. B. was the successful introducer of steam-navigation into Europe. After working three years as a stone-mason, he was, 1783, apprenticed to his uncle, a mill-wright. He was instructed in ship-modelling, and studied mechanics with an engineer. In 1808, he removed to Helensburgh, where he kept the principal inn, and gave his attention to mechanical experiments. For the question as to how far B. was anticipated by Fulton and others, in his application of steam to navigation, see STEAM NAVIGATION.

BELL, ISAAC: Amer. philanthropist; b. 1814; began business life in a banking house; later went South; and subsequently became identified with large financial and other concerns in New York, and with the work of benevolent institutions; was president of the Department of Charities and Correction 1857-73; was instrumental in establishing Bellevue Hospital and also its Medical School (being president of the latter for many years), and the Normal College.

BELL, JAMES FRANKLIN: Amer. military officer; b. 1856; promoted captain 1899, May 2; served in all the campaigns in the Cuban war; later went to the Philippines, and for distinguished service there was presented with a congressional medal of honor, and promoted brig.-gen. 1901.

BELL, JAMES MONTGOMERY: Amer. military officer; b. 1837; served through the civil war, in the Cheyenne, Arapahoe, and Kiowa war 1867-9, the Sioux wars 1876-81, the Nez Perces war 1877, and in the war with Spain 1898, and attained the rank of colonel, U. S. A., and brig.-gen. U. S. V., 1900.

BELL, JOHN: 1763, May 12—1820, Apr. 15; b. Edinburgh; second son of William, an Episc. minister; bro. of Sir Charles. He studied under the celebrated Black, Cullen, and Munro *secundus*; and commenced, 1786, lecturing at Edinburgh on surgery and anatomy, and in 1793 published the first vol. of his *Anatomy of the Human Body*; in 1797, appeared the second; and in 1802, the third. A vol. of anatomical drawings by himself, illustrative of the structure of the bones, muscles, and joints, was published 1794; and another vol., illustrative of the arteries, with drawings by his brother (afterwards Sir Charles) appeared 1801. In 1800, he published a *Memorial concerning the Present State of Military Surgery*. His *System of the Anatomy of the Human Body*, and his *Discourses on the Nature and Cure of Wounds* (Edin. 1793-95), were translated into German. A good classical scholar, he was distinguished alike for his great conversational powers and general information. He died at Rome, of dropsy. Besides the works mentioned, he was the author of *The Principles of Surgery*, 3 vols. 4to, 1801-07; new edition, edited by his brother, Sir Charles, 1826. A posthumous work, entitled

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Observations on Italy, edited by Bishop Sandford of Edinburgh, was published by his widow.

BELL, JOHN: 1797-1869; b. near Nashville, Tenn.; was admitted to the bar 1816, elected to the state senate 1817, and member of congress 1827-41, being speaker during one term. He was sec. of war under Pres. Harrison; and U. S. senator for 8 years, commencing 1848. Though he had once been a free-trader, he was in congress an earnest protectionist. He opposed 'nullification,' voted against the U. S. Bank, protested against the removal of the deposits, favored the compromise measures of 1850, but opposed the Kansas-Nebraska bill in 1854, and afterwards also the Lecompton constitution. B. was one of the founders of the whig party, and was the union candidate for president in 1860, receiving the votes of Virginia, Kentucky, and Tennessee.

BELL, JOHN: eminent sculptor, remarkable for rejecting the classical antique model, and following only nature in his works; b. Norfolk, Eng., 1811; first exhibited at the Royal Acad., London, 1832, a religious group. His works are numerous, and of high and original merit. B.'s statues of Lord Falkland, exhibited in model at Westminster Hall, 1847, and Sir Robert Walpole, 1854, were commissioned for the new Houses of Parliament. One of his best known designs is a monument to the Guards who fell in the Crimea, done 1858. In decorative art, also, he has distinguished himself. He was one of the sculptors of the Prince Consort Memorial in Hyde Park, London, which was unveiled 1873. B. is the author of a *Free Hand Drawing-book for the Use of Artisans*. He d. 1895, March.

BELL, ROBERT: Irish author and editor; b. 1800; educated at Trinity College, Dublin; was editor of *The Patriot*, a government journal, and *The Atlas*; and founded *The Monthly Chronicle*, a literary periodical, 1839. He wrote *The History of Russia*, *The Lives of English Poets*, *The Ladder of Gold Hearts and Altars*, *Life of Canning*, *Outlines of China*, *Memorials of the Civil War*, *Wayside Pictures through France, Belgium, and Holland*, etc. D. 1869.

BELL, ROBERT: Canadian geologist; b. 1841; educated at McGill and Queen's universities; joined in the Canada Geological Survey 1867, and made assistant director 1900. During his connection with the survey he made more extensive surveys and explorations than any other man throughout the dominion, especially in the provinces of Quebec, Ontario, and Manitoba, the Northwest Territory, the Mackenzie river region, the shores and country around Hudson bay, the peninsula of Labrador, part of Baffin bay, and the territory s. e. of James bay, where he found an immense region of good soil and lumber. He became a member of the American Institute of Mining Engineers 1861, a Fellow of the Royal Society of Canada 1881, and a member of the Ontario commission which reported on the mineral resources of that province 1888-89.

BELL, THOMAS: 1792-1889, Mar. 13; b. Poole, Dorsetshire, Eng.; son of a physician; distinguished natural-

BELLA—BELLADONNA.

ist. In 1814, he went to London, and studied at Guy's Hospital, and, 1815, passed the College of Surgeons. In 1817, he commenced a course of annual lectures on dental surgery at Guy's Hospital, where he also delivered lectures on comparative anatomy. He was one of the founders of *The Zoological Journal*, of which five vols. were published; also one of the members of the Zoological Club of the Linnæan Soc. afterwards incorporated with the Zoological Soc. Elected in 1828 a Fellow of the Royal Soc., in 1840 he was appointed its secretary. In 1836, he became prof. of zoology in King's College, London. On the establishment of the Ray Society, 1844, for the publication of rare and costly works on natural history, he was elected its first president. In 1853, he was elected pres. of the Linnæan Soc. He was author of a *History of British Reptiles* (1829); a *History of British Quadrupeds* (1836; 2d ed. 1874); and a *History of the British Stalk-eyed Crustacea* (1853). In 1833, he commenced a *Monograph of the Testudinata*, of which only eight parts appeared. The plates were reissued in 1872 with letterpress by Dr. Gray. The articles 'Reptiles,' in Darwin's *Voyage of the Beagle*, was written by Bell. His last work of interest was a new edition of Gilbert White's *Natural History and Antiquities of Selborne* (2 vols. 1878). In 1866, he purchased the Wakes of Selborne from the grandnieces of Gilbert White; and there he died, March 13, 1880.

BELLA, *běllá*: thriving town of Italy, province of Basilicata; pop. between 5,000 and 6,000.

BELLA, STEFANO DELLA: 1610, May 18—1664, July 12; b. Florence: famous Italian engraver. He executed above 1,400 different works, of almost all subjects—battles, sea-pieces, landscapes, animals, etc. All are characterized by freedom and delicacy, and give evidence of high imagination on the part of the author, and of much patient and careful manipulation. One of his most admired works is a view of the Pont-Neuf, Paris.

BELLADONNA, n. *běllă-dŏn'nă* [It. fair lady, from its having been used as a cosmetic by ladies—from It. *bella*, beautiful; *donna*, lady]; called also DWALE, or DEADLY NIGHTSHADE (*Atropa Belladonna*): plant of the nat. ord. *Solanaceæ* (q.v.); herbaceous perennial, growing up every year as a bush, from two to six ft. high, with ovate entire leaves, and bell-shaped flowers of a lurid purple color, which are fully larger than those of the common harebell, stalked and solitary in the axils of the leaves. It produces berries, of the size of a middle-sized cherry, and which, when ripe, are of a shining black color, and of a sweetish and not nauseous taste, although the whole plant has a disagreeable heavy smell. It is a native of the s and middle parts of Europe, cultivated in America, and is not uncommon in the neighborhood of towns and of ruins. All parts of the plant are narcotic and poisonous, and fatal consequences not unfrequently follow from the eating of its berries, which have an inviting appearance. Its roots have sometimes been mistaken

BELLADONNA.

for parsnips. Dryness of the mouth and throat, dilatation of the eyes, obscurity of vision, paralytic tremblings, loss of sensation, delirium, and stupor, are among the effects of poisoning by belladonna. When death takes place from this cause, corruption ensues with extraordinary rapidity. B. is, however, of great value in medicine in minute doses, soothing irritation and pain, particularly in nervous maladies, and is administered both internally and externally, in the form of extract, tincture, ointment, and plaster, which are generally prepared from the dried leaves, sometimes from the root. It is particularly useful, from its power of dilating the pupil of the eye, and is constantly employed by oculists both for examinations and operations. It is also applied to the eye to diminish the sensibility of the retina to light. It has recently been



Belladonna.

a, part of a branch with leaves and flowers; *b*, fruit, with persistent calyx.

recommended as a preventive of scarlet fever, apparently on the ground of its tendency, when administered in frequent small doses, to produce an eruption and an affection of the throat, somewhat similar to those characteristic of that disease; but the evidence of its utility for this purpose is not sufficient to command confidence.—The name B., i.e. Fair Lady, is supposed to have originated in the employment of the juice for staining the skin. The name Dwale is apparently from the same root with the French *deuil*, grief—an allusion to the same qualities which have obtained for the plant the appellation of Deadly Nightshade. *Atropa* is from *Atropos*, one of the mythologic Fates whose duty it was to cut the thread of life.—The other species of *Atropa* are South American.

B. owes its active properties on the animal system to the presence of the alkaloid *Atropine*, accompanied by another alkaloid, *Belladonnine*. The alkaloid atropine is present in all parts of the plant, and in all the preparations. It is

BELLADONNA LILY—BELLAI.

generally procured from the root of B., and then forms needle-shaped crystals, which are sparingly soluble in water, but readily dissolve in alcohol and ether. Atropine is a very active poison, and its effects on the animal system resemble in an intensified degree the manner in which B. acts. It has been introduced into medicine, with its nitrate, its sulphate, and its hydrochlorate. See ATROPIA.

BELLADON'NA LILY (*Amaryllis Belladonna*): a very beautiful species of *Amaryllis* (q.v.), with rose-colored drooping flowers clustered at the summit of the leafless flowering stem. It is a native of the Cape of Good Hope and of the West Indies, has become naturalized in Madeira, and is an ornament of gardens. The flowering stem is about 18 inches high.

BELLAGIO, *běl-lă'jō*: town in Italy, 16 m. n.n.e. of Como, on the promontory that separates Lakes Como and Lecco. It contains some of the finest hotels in the kingdom, and many handsome villas with valuable art-collections. Permanent pop. about 1,000.

BELLAI (or BELLAY), *bā-lā'*, GUILLAUME DU, Lord of Langey: 1491-1543; b. Glatigny, France: soldier. He distinguished himself as a gen. in the service of Francis I.; was sent as viceroy into Piedmont 1537, and took several towns from the imperialists; exerted a powerful influence for Henry VIII. when seeking a divorce to marry Anne Boleyn; had great ability as a negotiator; and his successes drew from Charles V. the remark that B.'s pen had fought more against him than all the lances in France. B. wrote several works, the most important being his *Mémoires*, 7 vols., 1753.

BELLAIRE—BELLAMY.

BELLAIRE, or **BELL AIR**, *běl-är'*: city in Belmont co., O.; on the w. bank of the Ohio river and on the Baltimore and Ohio, Cleveland and Pittsburg, and the Bellaire Zanesville and Cincinnati railroads; 3 m. s. of Wheeling, W. Va.. 137 m. e. of Columbus. It is in a coal, iron, and limestone region; has gas and electric light plants, steel railroads, and water-works; manufactures nails, flint ware, window glass, galvanized ware, pig iron, and agricultural implements; and has 12 churches, 1 national bank (cap. \$200,000), 1 savings bank (cap. \$50,000), and 2 daily and 4 weekly newspapers. Pop. (1870) 4,033; (1880) 8,025; (1890) 9,934; (1900) 9,912.

BELLAMONT, or **BELLOMONT**, *běl'la-mont*, **RICHARD COOTE**, Earl of: 1636–1701: he was created earl (1689) because he had assisted to dethrone James II., to make room for William III., Prince of Orange; while, on the contrary, his father had been made peer for helping to restore a disinherited king, Charles II. He was appointed governor of New York in 1695, May, and soon after also of Massachusetts. Being a man of inflexible integrity and resolution, William III., sent him, 1698, to America to suppress piracy and unlawful trade. In Boston he ingratiated himself with the people, checked piracy, and sent the notorious pirate Capt. Kidd to England to be tried and executed (1701). In New York he attacked the unlawful trade so vigorously that the merchants sent a remonstrance to England, and, by their annoyances, caused and hastened his death. His body lies in St. Paul's churchyard, New York, though buried at first at the Battery.

BELLAMY, *běl'la-mě*, **EDWARD**: author: b. Chicopee Falls, Mass., 1850; son of the pastor of the Bapt. church in that town. He was educated in Union College, N. Y., and in Germany; studied law and was admitted to the bar; abandoned law for journalism; was editorially connected with the *New York Evening Post* 1871, and the *Springfield Union* 1872–76; and then applied himself wholly to book literature. His publications include: *A Nantucket Idyll*; *Dr. Heidenhoff's Process*; *Miss Ludington's Sister*; *The Blind Man's World*; and his most celebrated work, *Looking Backward*, which reached its 122d edition 1890, Jan., has been translated into several foreign languages, and has led to the organization of many Nationalist clubs in the United States. He d. 1898, May 22.

BELLAMY, *běl'la-mě*, **JACOBUS**: 1757, Nov. 12—1786, Mar. 11; b. Vliessingen (Flushing): distinguished Dutch poet. His parents were very poor, and he was indebted for his education to the patronage of a clergyman, and other friends who subscribed to send him to the Univ. of Utrecht. Here the talents already remarked in B. were given to poetry, though his benefactors had hoped that he would devote himself to theology. His first sentimental and anacreontic poems, published Amsterdam, 1782, were followed by a series of earnest patriotic poems (*Vaderlandsche Gezangen*), and in the same year a third vol. full of merit (1785). A collected edition of his works appeared

BELLARMINO.

at Haarlem (1826), but it does not contain his most popular poem, *Roosje*. B. had a glowing spirit and fancy, as well as a fine taste and ease in composition, and ranks as one of the chief restorers of national literature in Holland.

BELLARMINO, *bĕl-lar-mĕ'nō*, or BELLAR'MINE, ROBERT: 1542, Oct. 4—1621, Sep. 7; b. Monte Pulciano, Tuscany: one of the most celebrated Rom. Cath. theologians. He entered the order of Jesuits, 1560, and was distinguished among his *confrères* by the zeal with which he studied theology, the church-councils, the Fathers, Hebrew, history, and the canon law. In 1563, he gave lessons in polite literature and astronomy at Florence; and in rhetoric, at Mondovi, 1564–67. In his twenty-seventh year, when he went to Louvain as prof. of theology, he began that long controversy with 'heretics' which formed the main business of his life. In 1599, when he was made a cardinal against his own inclination, he used his influence over Pope Clement VIII. to prevent the introduction of the Platonic philosophy into the Univ. of Rome, on the ground of its being 'pernicious;' but though himself a Jesuit, he honorably opposed the Dominicans with regard to the Pelagian writings of Molina. He seems, however, to have participated to some extent in that writer's suicidal ethics, for in his *Disputationes* he argues that, as the pope is the supreme authority in doctrine and morals, if he should call virtue vice, and vice virtue, men are bound to believe him, and to act accordingly. In 1602, he was appointed Abp of Capua. After the death of Clement VIII., he contrived to escape promotion to the papal chair, but was induced by Pius V. (1605) to hold an important place in the Vatican, where he remained until his death, which took place in the novitiate-house of the Jesuits. In his work, *De Potestate Pontificis in Temporalibus* (On the Pope's Power in Secular Matters), he introduced the doctrine that the pope must be held as supreme over all kings. On this account, the book was condemned as treasonable in Paris, Venice, and Mentz. His chief work contains the disputations held in the Jesuits' College at Rome, 1576–81, *Disputationes de Controversiis Fidei adversus hujus Temporis Hereticos* (3 vols., Rome, 1581; 4 vols., Prague, 1721; 4 vols., Mayence 1842). These disputations are regarded by Rom. Catholics as the best arguments for their tenets. There can be no question of their merits with regard to erudition and adroitness in controversy; but as Gerhard, in his *Bellarminus Orthodoxiæ Testis* (Jena, 1631–33), and Dallæus have shown, many of the conclusions are far from being sound or logical. Industry, clearness, and acuteness are the chief merits of B.'s great work; but it is seriously lessened in value by subtlety, forced conclusions, and a very defective exegesis—faults which have long been evident to enlightened Rom. Cath. writers themselves. Among his other writings, the most able is the *Christianæ Doctrinæ Applicatio*, originally written in Italian, and now translated into all the European languages. Pope Urban VIII., at the instigation of the Jesuits, declared B. to be a 'faith-

BELLARY—BELL-BIRD.

ful servant of God;' but his canonization as a saint has hitherto been opposed. Complete editions of his works have been published at Venice, 5 vols., 1721; and Cologne, 7 vols., 1619. His life was written in Italian by the Jesuit Fuligatti (Rome, 1624); and translated into Latin by Petra Sancta (Liege, 1626).

BELLARY, *bel-lá'rē*: district of British India in the presidency of Madras; bounded on the n. by the Nizam's territories, on the e. by Cuddapah, on the s. by Mysore, and on the w. by Dharwar; 5,904 sq. m.; in n. lat. between $13^{\circ} 40'$ and $15^{\circ} 58'$; and in e. long. between $75^{\circ} 44'$ and $78^{\circ} 19'$. The peculiarities of the district are connected with its situation. Elevated on the e. slope of the West Ghauts, B. enjoys so healthy a climate that it has been officially recommended as the site of a sanatorium for the neighboring provinces. Screened by the Ghauts from the s.w. monsoon, and protected against the n.e. one by its distance from the Bay of Bengal, B. receives, on an average, less rain than any other portion of southern India—the annual fall ranging between about 12 inches and about 26 inches. Hence all its subordinate streams become, in the dry season, mere expanses of sand, which, excepting when bound together by the growth of the nuth-grass, is apt to encroach from year to year, like a glacier, over the bordering grounds. B., in fact, may in a great measure be said to be habitable through artificial means. Irrigation, though rude, is yet ingenious; dug wells amount to 22,000; of tanks there are 1,400; and weirs or dams of huge stones, to the number of 331, cross the various water-courses, so as to form, after the rains, so many reservoirs. Pop. (1881) 736,807; (1890) 1,652,044.

BELLA'RY: chief town of the dist. of B.; about 380 m. s.e. of Bombay, and 305 n.w. of Madras; lat. $15^{\circ} 8'$ n., and long. $76^{\circ} 57'$ e. As one of the principal military stations in the presidency of Madras, it is connected by good roads with Belgaum, Bangalore, Hyderabad, and by rail with Madras. The fort, crowning a rock two m. round, and 450 ft. high, is supplied with water from tanks excavated in the solid granite. Besides the fort and adjacent cantonments, B. comprises a native town. It was ceded to England in 1800. Pop. (1891) 59,467.

BELL'-BIRD (*Casmorynchus carunculata*): a bird found in some of the warm parts of S. America, remarkable for the metallic resonance of its cry, which resembles the tolling of a bell, with pauses varying from a minute to several minutes. This bird belongs to a genus nearly allied to the Cotingas (q.v.) and Wax-wings (q.v.), but characterized by a very broad and much depressed bill, soft and flexible at the base, and hard towards the extremity. It is about the size of a jay; the male is of snow-white plumage, and from his forehead rises a strange tubular appendage, which, when empty, is pendulous, but which can be filled with air by a communication from the palate, and then rises erect to the height of nearly three inches. He generally takes his place on the top of

BELL, BOOK, AND CANDLE—BELLE DE NUIT.

a lofty tree, and his tolling can be heard to the distance of three miles. It resounds through the forest, not only at morning and evening, but also at mid-day, when the heat of the blazing sun has imposed silence on almost every other creature.

BELL, BOOK, AND CANDLE: a phrase derived from the ceremony of excommunication in the Church of Rome. The officiating minister pronounces the formula of excommunication, consisting of maledictions on the head of the person anathematized, and closes the pronouncing of the sentence by shutting the book from which it is read, taking a lighted candle and casting it to the ground, and tolling the bell as for the dead. This mode of excommunication appears to have existed in the western churches as early as the 8th c. Its symbolism may be explained by quoting two or three sentences from the conclusion of the form of excommunication used in the Scottish Church before the Reformation: 'Cursed be they from the crown of the head to the sole of the foot. Out be they taken of the book of life. And as this candle is cast from the sight of men, so be their souls cast from the sight of God into the deepest pit of hell. Amen.' The rubric adds: 'And then the candle being dashed on the ground and quenched, let the bell be rung.' So, also, the sentence of excommunication against the murderers of the Abp. of Dublin in 1534: 'And to the terror and fear of the said damnable persons, in sign and figure that they be accursed of God, and their bodies committed into the hands of Satan, we have rung these bells, erected this cross with the figure of Christ; and as ye see this candle's light taken from the cross and the light quenched, so be the said cursed murderers excluded from the light of heaven, the fellowship of angels, and all Christian people, and sent to the low darkness of fiends and damned creatures, among whom everlasting pains do endure.'

BELLE, n. *bêl* [F. *belle*, beauty]: a young lady much admired.

BELLE-ALLIANCE: name of a farm in the province of Brabant, Belgium, 13 m. s. of Brussels; famous as the position occupied by the centre of the French army in the battle of Waterloo, 1815, June 18. The Prussians gave the name B. to this decisive battle; the French named it from Mont-Saint-Jean, the key of the British position, about two m. to the n.; but the English name, Waterloo (q.v.), taken from the village where Wellington had his headquarters, is now commonly used.

BELLE DE NUIT [Fr. Beauty of the Night]: name given to certain tropical species of *Convolvulaceæ*, with extremely beautiful and fragrant flowers, which open only during the night. The species to which perhaps the name more particularly belongs is *Calonyction Bona Nox*, native of the forests of the W. Indies and of tropical America, with twining stem, spiny branches, heart-shaped leaves, and exquisitely beautiful white flowers of five or six inches in diameter, produced in large many-flowered corymbs.

BELLEFONTAINE—BELLENDEN.

BELLEFONTAINE, *běl-fōn'tān*: cap. of Logan co., O. on the highest ground in the state, 113 m. n.n.e. of Cincinnati, 50 m. n.w. of Columbus. Two of the principal railroads, one running n. and s., and the other e. and w., connect it with business centres in all directions. It has a court-house, two banks, several newspapers, a dozen churches, a union school, and manufactures of railroad cars, carriages, and woclen goods. Pop. (1870) 3,182; (1880) 3,098; (1890) 4,245; (1900) 6,649.

BELLEGARDE: a hill-fortress of France, in the dept. of Pyrénées Orientales; on the Spanish confines on the road from Perpignan to Figueras, in the pass between Col de ertuis on the e., and Col de Panizas on the west. Here the French, under Philip III., were defeated by Peter III. of Arragon, 1285. In the 14th c., B. consisted only of a fortified tower. It was captured by the Spaniards, 1674, and again by the French under Marshal Schomberg, 1675. After the peace of Nimeguen, 1678-9, a regular fortress, with five bastions, was erected here by order of Louis XIV. In 1793, it was blockaded and taken by the Spaniards under Ricardos, but was retaken by the French in the following year.

BELLE ISLE, *běl-īl*: island in the Atlantic, about midway between the n.w. of Newfoundland and the s.e. of Labrador, lat. 52° n., and long. 56° west. Although on the parallel of Essex in England, it yields little but potatoes and ordinary vegetables. It is known chiefly as giving name to the adjacent strait on the s.w., 70 m. long and 11 m. wide, which, separating Labrador from Newfoundland, forms the most northerly of the three channels between the Gulf of St. Lawrence and the open ocean.

BELLEISLE-EN-MER, *běl-īl'ong-mār*: an island belonging to France in the dept. Morbihan; in the Atlantic, 8 m. s. of Quiberon Point; length 11 m., greatest breadth 7. The inhabitants are engaged chiefly in pilchard-fishing. Salt is made on the island. The chief town is *Palais* (pop. 2,980), a seaport and fortified place. In the 9th c., B. came into the possession of the Count of Cornouailles, who bestowed it on the abbey of Redon, afterwards on the abbey of Quimperlé. In the 16th c., the monks of Quimperlé ceded the island to Charles IX., who gave it as a marquise to the Marshal de Retz, who fortified it. His successor sold the island, 1658, to Fouquet, intendant of finance, who further improved and strengthened it. His grandson, the celebrated Marshal Belleisle, ceded the island to Louis XV. in exchange for the comté Gisors, 1718. In 1761 it was captured by the English fleet under Keppel, and restored in 1763. Pop. about 10,000.

BELLENDEN, *běl'en-den* (BALLANTYNE), JOHN, Archdeacon of Moray: d. abt 1550: Scottish writer in the reigns of James V. and Queen Mary; born towards the close of the 15th c., somewhere in the e. of Scotland, for in the records of the Univ. of St. Andrews he is entered thus: '1508, *Jo. Ballentyn nac. Laudonie.*' He completed his education at the Univ. of Paris, where he took the degree

BELLENDEN—BELLEROPHON.

of D.D. B. is remembered by his translation of Boece's *Scotorum Historia*, and of the first five books of Livy (both done in 1533), interesting as specimens of the Scottish prose of that period, and remarkable for the ease and vigor of their style. To both of these works are prefixed poetical *prohemes* or prologues. B.'s *Croniklis of Scotland* professes to be a translation of Boece, but it is very free, and contains numerous passages not to be found in the original, so that it is in some respects almost an original work. The author was in great favor for a long time at the court of James, at whose request he executed the translations. As the reward of his performances, he received grants of considerable value from the treasury, and afterwards was made Archdeacon of Moray and Canon of Ross. Becoming involved, however, in ecclesiastical controversy, he left his country, and, according to Bale and Dempster, went to Rome, where he died. The translation or 'traductionoun' of Livy was first published 1822 by Mr. Thomas Maitland (afterwards Lord Dundrennan), uniform with his edition of the *Croniklis* in the previous year (Edin., 2 vols. 4to).

BELLENDEN, WILLIAM: Scottish author in the time of Queen Mary and James VI. His personal history is meagre and obscure; all that is known being the testimony of Dempster (*Hist. Eccl.*), that he was a prof. in the univ., and an advocate in the parliament of Paris, and that he was employed in that city in a diplomatic capacity by Queen Mary, and by her son, who conferred on him the appointment of Master of Requests. His first work, entitled *Ciceronis Princeps*, etc., was pub. Paris, 1608; his next, *Cicronis Consul, Senator, Populusque Romanus*. 1612. Both are compilations from the writings of Cicero. His next work, *De Statu Prisci Orbis*, appeared 1615, and consists of a condensed sketch of the history and progress of religion, government, and philosophy, in ancient times. These three works he republished in a collected form the year after, under the title *De Statu, Libri tres*. His crowning labor, *De Tribus Luminibus Romanorum*, was published after his death. The 'three luminaries' were Cicero, Seneca, and Pliny, out of whose works he intended to compile, on the same plan as his previous works, a comprehensive digest of the civil and religious history, and the moral and physical science of the Romans. The first of these only was completed, and forms a remarkable monument of B.'s industry and ability. 'B.,' says Mr. Hallam, 'seems to have taken a more comprehensive view of history, and to have reflected more philosophically on it than perhaps any one had done before.' B.'s works furnished the material^s for Dr. Middleton's *Life of Cicero*, though that learned divine abstains from any allusion to the forgotten Scot from whom he plundered wholesale. Warton first denounced the theft, which was afterwards made clear by Dr. Parr in his edition of the *De Statu, Libri tres*, 1787.

BELLEROPHON, n. *běl-lér'ō-fōn* [from *Bellerophon*, a

BELLEROPHON.

fabulous hero of antiquity]: genus of univalve shells, known only as a fossil. Montfort, who established the genus, placed it among the chambered *Cephalopoda*. It was subsequently associated with the living Argonaut, but is now generally considered as a genus of De Blainville's *Nucleobranchiata* (q.v.), having as its nearest ally



Bellerophon Tangentialis.

the genus *Atalanta*; from which, however, it differs in having a strong shell. The shell of the B. is symmetrically convolute, with few and occasionally sculptured whorls, globular or discoidal, and having a dorsal keel, which terminates in a deep notch in the sinuous aperture. It is a palæozoic organism, extending from the lower silurian to the carboniferous series. Seventy species have been described.

BELLEROPHON, *bél-lér'ō-fōn* (originally called HIR-PO-NOUS): fabulous hero of antiquity; son of the Corinthian king Glaucus, and Eurymede, dau. of Sisyphus. Other accounts make Neptune his father. Having accidentally killed his brother, B. fled to his relative Prætus, King of Argos, by whom he was hospitably received and protected; but Anteia, the spouse of Prætus, having become enamored of him, and he, like Joseph, having declined her overtures, she revenged herself after the manner of Potiphar's wife. This induced Prætus to send his guest away to Iobates, King of Lycia, to whom B. carried a sealed message. After being entertained nine days at the court of Lycia, B. delivered the letter, which contained a request that Iobates would cause the youth to be slain. This, however, Iobates was reluctant to do in a direct way, as B. was his guest. He consequently imposed upon B. the seemingly impossible task of slaying the formidable Chimæra (q.v.). B., mounted on the winged steed Pegasus (given to him by Pallas), ascended into the air, and succeeded in slaying the monster with his arrows. Afterwards, he was sent by King Iobates against the Amazons, whom he defeated. On his way home he destroyed an ambuscade of Lycians, which Iobates had set for his destruction. That monarch now thought it useless to attempt his death, and, as a sort of recompense, gave the hero in marriage his daughter Philonoë, by whom he had three children—Isander, Hippolochus, and Laodameia: such at least is the story as told by Apollodorus, who here concludes. Homer relates that he at last drew on himself the hatred of the gods, and wandered about in a desolate condition through the Aleïan field. Pindar relates that B. on Pegasus endeavored to mount to Olympus, when the steed, maddened by Jove through the agency of a

BELLES-LETTRES—BELLIGERENT.

gadfly, threw his rider, who was stricken with blindness. B.'s adventures were a favorite subject of the ancient artists. Sculptures have recently been discovered in Lycia which represent him vanquishing the Chimæra.

BELLES-LETTRES, n. plu. *běl-lět'tr* [F.]: a term adopted from the French into the English and various other languages. It is generally used in a vague way to designate the more refined departments of literature, but has in fact no precise limits. In English usage it is synonymous with another vague expression, *polite literature*, including history, poetry, and the drama, fiction, essay, and criticism. It signifies also in *Rhetoric* the rules of elegant composition.

BELLEVILLE, *běl'vīl*: cap. of St. Clair co., Ill.; on high ground, about 15 m. s.e. of St. Louis, 110 m. s.s.w. of Springfield. More than half a dozen important railroads connect it with trading-points in all directions. It has about eight churches, a convent, St. Peter's Cathedral, flour-mills, and manufactures of iron, steam-engines, threshing-machines, drills, etc. The population is largely German. There are two German daily newspapers, and two German weeklies; also two English weekly papers. It has rich and easily accessible mines of bituminous coal. Pop. (1880) 10,682; (1890) 15,361; (1900) 17,484.

BELLEVILLE, *běl'vīl*: cap. of Hastings co., Ont., at the mouth of the river Moira, on the Bay of Quinte, 43 m. w. of Kingston. It has unlimited water-power, and a good harbor, is well-built, and lighted with gas. Besides the county buildings, there are many handsome stores, half a dozen newspapers, convent, nine churches, foundries, flouring-mills, sash, door, and blind factories, woollen factories, breweries, distilleries, etc. B. is the seat of Albert Univ. Pop. (1891) 9,914; (1901) 9,117.

BELLEVILLE, *běl-věl*: town of France, in the dept. of the Seine, forming a suburb of Paris, and inclosed by the new fortifications. It has manufactories of cashmeres, varnished leather, articles of polished steel, chemical stuffs, etc. There are springs at B. which have supplied Paris with water from a very early date, and it has tea-gardens and other resorts for the Parisians.

BELLEW, FRANCIS HENRY TEMPLE: artist: 1828-1888; b. in the E. Indies; believed to be descendant from a family in the Irish peerage. He was educated in England, developed unusual ability as an artist and after settling in New York, shortly before the civil war, became well known as a clever artist, especially in caricature.

BELL'-FLOWER: see CAMPANULA.

BELLIBONE, n. *běl'ī-bōn* [F. *belle*, beautiful; *bonne*, good]: in *OE.*, a fair maid; a woman beautiful and good.

BELLICOSE, a. *běl'ī-kōz'* [L. *bellicōsus*, very warlike—from *bellum*, war]: inclined to war; over-warlike.

BELLIGERENT, a. *běl-līj'ér-ěnt* [L. *bellum*, war; *gēren'tem*, carrying on]: waging war; carrying on war: N a nation or state having a right to carry on war; a party or a

power recognized by other nations as carrying on regular warfare, in contradistinction to *rebels*.

BELLINI, *bel-lē'nē*: name of a Venetian family which produced several remarkable painters. The earliest was JACOPO B.; died 1470: pupil of the celebrated Gentile da Fabriano, and one of the first who painted in oil. His eldest son, GENTILE B., 1421–1501, was distinguished as a portrait-painter, and also as a *medaillieur*. With his brother, he was commissioned to decorate the council-chamber of the Venetian senate. Mohammed II., having by accident seen some of his works, invited Gentile to Constantinople, employed him to execute various historical works, and dismissed him laden with presents. The *Preaching of St. Mark* is his most famous achievement. His more celebrated brother, GIOVANNI B., 1422–1512, was the founder of the older Venetian school of painting, and contributed greatly to its progress. His works are marked by naïveté, warmth, and intensity of coloring. His best works are altar-pieces. His picture of the *Infant Jesus* slumbering in the lap of the Madonna, and attended by angels, is full of beauty and lively expression. His *Holy Virgin*, *Baptism of the Lord*, and *Christ and the Woman of Samaria*, also are much admired. Among his numerous pupils the most distinguished were Giorgione and Titian.

BELLINI, VINCENZO: 1802, Nov. 3—1835, Sep. 24; b. Catania, Sicily: popular modern opera composer. He received his early education at the Conservatory of Naples, and was subsequently instructed in composition by Tritto and Zingarelli. After making some attempts, without much success, in instrumental and sacred music, he brought out, 1825, the opera *Adelson e Salvini*, which was played in the small theatre of the Royal College of Music (Naples). Another opera, *Bianca e Fernando*, was given in the theatre St. Carlo (1826) with such success that, in 1827, Bellini was commissioned to write a piece for La Scala at Milan. This opera, *Il Pirata*, was the first which carried the composer's name beyond Italy. It was followed with equal success by *La Straniera*, 1828, and by *I Capuleti ed i Montecchi*, written for the theatre of Venice, 1830, which was the culmination of the fame of B., though it by no means exhausted his productive powers. *La Sonnambula* and *Norma* appeared in 1831, and *Beatrice di Tenda* in 1833. In the same year the composer went to Paris, where he became acquainted with other forms of music besides the Italian. He was received with great applause in London, and after his return to Paris, wrote his opera *I Puritani*, which shows the influence of the French school of music, but without servile imitation. At an early age the career of B. was interrupted by death, at Puteaux, near Paris, before the composer had fully developed his powers. He was the most genial and original of all the followers of Rossini, and though inferior to his master in exuberance of fancy, is superior in carefulness and finish, especially in the due subordination of instru-

BELLINZONA—BELLOT.

mental decorations to vocal melody. See Pouglin, *B., sa Vie, ses Œuvres* (Par. 1868), and Hiller's *Künstlerleben* (Cologne, 1880).

BELLINZONA, *běl-lîn-zō'ná*, or **BEL'LENZ**: town of Switzerland, canton of Tessin or Ticino, on the left bank of the river of that name, seat of the provincial government, alternately with Lugano and Locarno. It is guarded by three old castles, and completely commands the passage of the valley in which it is situated. In former times, it was considered a place of great military importance, and was the scene of frequent conflicts between the Italians and Swiss; the latter of whom finally made themselves masters of it about the beginning of the 16th c. As an entrepôt for the merchandise of Germany and Italy, it is now a place of considerable commercial importance, though the pop. (1880) was but 2,436; (1890) 3,000.

BEL'LIS: see **DAISY**.

BELLON, n. *běl'lŭn*: in *med.*, a kind of colic produced by lead poisoning; lead colic. It is attended by severe griping of the intestines.

BELLONA, n. *běl-lō'na* [*L. bellona*, formerly *duellona*—from *bellum*, war]: the goddess of war; an asteroid, the 28th found.

BELLONA, *bel-lō'na*: the goddess of war among the Romans, described by the poets as the companion, sister, wife, or daughter of Mars; she was also represented as armed with a bloody scourge, and as inspiring her votaries with a resistless enthusiasm in battle. In the war with the Samnites, the consul Appius Claudius vowed a temple to B., which was erected afterwards on the field of Mars. In this temple the senate gave audience to embassies from foreign powers, and also to consuls who had claims to a triumph which would have been nullified by entrance into the city. The priests of the goddess were styled *Bellonarii*, and practiced sanguinary rites; such as cutting their own arms or feet, and offering (or even drinking) the blood in sacrifice. This was especially done on the *dies sanguinis* (day of blood), March 20.

BELLOT, *bā-lō'*, **JOSEPH RENÉ**: 1826, Mar 18—1853, Mar. 21; b. Paris: lieut. in the French navy, who perished in the arctic regions, in search of Sir John Franklin. He was educated at Rochefort, in the naval school. In the French expedition against Tamatave, 1845, he showed such courage and presence of mind, that the cross of the Legion of Honor was conferred on him before his twentieth year. In 1851, May, he joined the expedition then preparing in England for the polar regions, in search of Sir John Franklin, and sailed in the *Prince Albert*, Kennedy commander, sent out by Lady Franklin. Distinguished by noble daring, he took part in several explorations. In one of these he made an important geographical discovery, Bellot Strait (q.v.). On his return, he was promoted to the rank of navy lieut. In the expedition fitted out by the British admiralty, under Captain Inglefield, he sailed

BELLOT STRAIT—BELLOWS.

as a volunteer, in H.M.S. *Porpoise*; but never returned, having been carried by a violent gust of wind into a deep crack in the ice on which he was travelling. A considerable sum was subscribed in England for a monument to his memory. His *Journal of a Voyage to the Polar Seas made in Search of Sir John Franklin* in 1851–1852, edited, with a notice of his life, by M. Julien Lemer, 2 vols., was published at Paris in 1854. English translation, London, 1855.

BELLOT STRAIT: the passage which separates North Somerset from Boothia Felix, and connects Prince Regent's Inlet with Peel Strait or Sound, or, in M'Clintock's new nomenclature, Franklin Channel. Its entrance was discovered by Kennedy during his search for Franklin, and he, assuming the continuity of the opening, classified it accordingly, naming it after his lamented companion Bellot. After four unsuccessful attempts, it was explored for the first and perhaps last time by M'Clintock on his crowning voyage. It is about 20 m. long, and, at its narrowest part, about 1 mile wide, running nearly on the parallel of 72°, between granite shores which, everywhere high, rise here and there to 1,500 or 1,600 ft. Through this funnel both the winds and the waters have full play; the latter, permanent currents and flood-tides alike, coming from the w. To the most n. point on the s. shore, M'Clintock has given the name of Murchison Promontory, which, at least unless other straits like Bellot Strait be found towards the isthmus of Boothia, must be also the most northerly point of the new continent. See **BARROW, POINT**.

BELLOW, *v.* *běllō* [AS. *bellan*, to sound loudly: Gael. *beul*, a mouth]: to make a loud noise; to cry out lustily; to roar loudly as an enraged bull: N. a loud shout; a roar. **BEL'LOWING**, *imp.*: **ADJ.** roaring loudly as an enraged bull: N. a loud noise, as the roaring of a bull. **BELLOWED**, *pp.* *běllōd*. **BEL'LOWER**, *n.* one who.

BELLOWS, *n. plu.* *běllōs* or *běllūs* [AS. and Sw. *baelg*, a bag or pouch: Gael. *balg*, a leather bag: mid. L. *bulga*, a womb or belly]: an inflated skin or case; an instrument or machine for blowing up a fire, or for supplying the pipes of an organ with wind: see **BLOWING-MACHINES**.

BELLOWS, HENRY WHITNEY, D.D.: 1814, June 11—1882, Jan. 30; b. Boston. He studied at Harvard Univ., where he graduated 1832, and at the Divinity School at Cambridge 1837. He was ordained pastor of the First Unitarian Congl. Church of New York, 1839, Jan. 2, the church being at that time in Chambers street, whence it was removed to Broadway and its name changed to 'The Church of the Divine Unity,' and again removed to Fourth avenue and Twentieth street, and the name again changed to 'All Souls.' Dr. B. continued the pastor of this church until the close of his life, becoming widely known as an able and eloquent speaker as well out of as in the pulpit. He was greatly in demand as a lecturer on

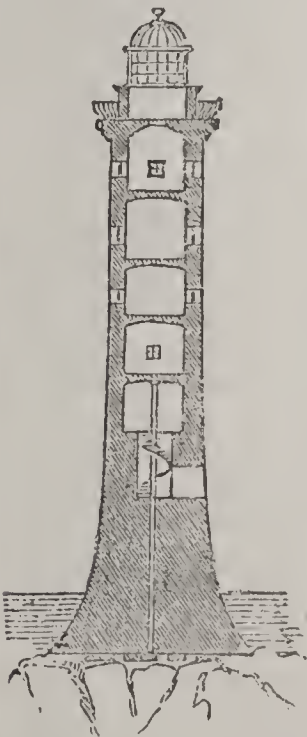
BELLOWS-FISH—BELL ROCK.

social questions and for extemporary speeches on important public occasions.

Dr. B. was a man of lovable spirit, fine culture, and large attainments, and was a constant writer for the press. In 1846 he founded the *Christian Enquirer*, a weekly Unitarian paper, to which he was the principal contributor for four years. He was an associate editor of the *Christian Examiner* and the *Liberal Christian*. During the war of the Rebellion he was pres. of the U. S. Sanitary Commission, of which he was the leading organizer, and whose vast affairs he administered with a degree of ability which commanded the respect of the government officials and noted financiers with whom he was brought into close and constant relation through the expenditures of the millions of money contributed to the Commission. He filled this office from 1861 till 1878, during which time he directed the distribution of \$15,000,000 worth of supplies and the expenditure of \$5,000,000 in money.

BELLOWS-FISH: see TRUMPET-FISH.

BELLOY, *bā-hwǎ'*, PIERRE LAURENT BUIRETTE: 1727, Nov. 17—1775, Mar. 5; b. St. Flour, Auvergne: one of the first French dramatists who ventured to introduce on the stage native, instead of Greek, Roman, or other outlandish heroes. Educated by his uncle for the law, he turned to the drama, leaving his home, and acting in various places under the name of Dormont de B. For some years he resided at St. Petersburg, where the Empress Elizabeth interested herself in him. In 1758, he returned to France, to superintend the 'bringing out' of his tragedy *Titus*, trusting that its success would reconcile his family to him. In this he was disappointed, for the piece proved a failure, being only a feeble imitation of *Metastasio*, and he returned to St. Petersburg. After the death of his uncle, he again visited France, and obtained a decided success by his tragedy of *Zelmire*. In 1765 appeared *Le Siège de Calais*, which was immensely popular, and is even yet held in estimation; and in 1771, *Gaston and Bayard*, which secured for him an entrance to the French Acad. But his production which has longest retained a place in the *répertoire* of the stage, though it was far from popular at first, is *Pierre le Cruel*. B.'s dramas are not wanting in theatrical effectiveness, but are marred by great incorrectness. They have been collected and edited by Gaillard (6 vols., Par. 1779).



Section of Bell Rock
Light-house.

BELL ROCK, or INCH CAPE: a reef of old red sandstone rocks in the German Ocean, 12 m. s.e. of Arbroath, and nearly opposite the mouth of the Tay. The reef is 2 000 ft. long; at spring

BELLS—BELLUR.

tides part of it is uncovered to the height of four ft.; and for 100 yards around the sea is only three fathoms deep. It was formerly a fruitful cause of shipwreck, and, according to tradition, the abbot of Aberbrothwick (Arbroath) placed a bell on it, 'fixed upon a tree or timber, which rang continually, being moved by the sea, giving notice to the saylers of the danger.' This tradition has been embodied by Southey in his well-known ballad of *The Inchcape Rock*. A lighthouse, designed by Robert Stevenson, was commenced 1807, and completed on the reef 1811, and a revolving red and white light exhibited. The structure is 115 ft. high; is 42 ft. in diameter at base, and 15 at top, is solid for the first 30 ft. upwards, 15 ft. of which is under water at high tide, and cost up wards of £60,000.

BELLS, on Shipboard: term having a peculiar meaning, not exactly equivalent to, but serving as a substitute for 'time,' or 'hour,' 'o'clock,' in ordinary land-life. The day, or rather the night, is divided into 'watches,' or periods, usually of four hours' duration each; and each half-hour is marked by striking on a bell. The number of strokes depends, not on the hour, according to ordinary reckoning, but on the number of half-hours which have elapsed in that particular watch. Thus, 'three bells' is a phrase denoting that three half-hours have elapsed, but it does not in itself show to which particular watch it refers. Captain Basil Hall, in his *Fragments of Voyages and Travels*, while treating of Sunday usages on board ships of the Brit. Navy, mentions one or two phrases illustrative of this mode of time-reckoning. While the sailors are at breakfast on Sunday morning, 'the word is passed to "clean for muster," and the dress is specified according to the season of the year and climate. Thus, at different seasons is heard: "Do you hear there, fore and aft! clean for muster at five bells! duck-frocks and white trousers!"—or, "Do you hear there, clean shirt and a shave for muster at five bells!"' A ship's bell is usually hung to the beam of the fore-castle, but occasionally to a beam near the mizzen-mast.

In foggy weather, both steamers and sailing vessels *when at anchor* sound their bells at intervals not exceeding two minutes; but sailing ships under way sound a fog-horn during fogs, and steamers in motion their whistles. See **WATCH ON SHIPBOARD**.

BELLUINE, n. *bě'l'ľŭ-in* [L. *belluinus*]: bestial; beastly; brutal, animal.

BELLUNO, *bě'l-ľŏ'nŏ* (the ancient *Bellunum*): city of Venetia, n. Italy, on the right bank of the Piave; 51 m. n. of the city of Venice. It is walled, is the seat of a bishop, has a handsome cathedral, hospital, public library, fine aqueduct, etc. It has a trade in timber, and manufactories of silks, hats, leather, and earthenware. Pop. 7,000.

BELLUR. large town in the territory of Mysore, India, 40 m. n. from Seringapatam, with a fort, which has a strong mud rampart and ditch. The town itself was formerly protected by a similar rampart, which is now ruin-

BELLY—BELMONT.

ous.—Another town of the same name, also in Mysore, is 60 m. w.n.w. from this, a mile from the w. bank of the river Yagachi, or Bhadri, one of the head-waters of the Cavery.

BELLY, n. *běl'li* [AS. *baelg*, a bag: Dut. *balg*, a belly (see BELLOWS)]: that part of the body of an animal which contains the bowels; that part of a thing which swells out; a hollow place or cavity: V. to fill or swell out; to become protuberant. BEL'LYING, imp. BELLIED, pp. *běl'lid*: ADJ. puffed up; swelled. BELLYFUL, n. *běl'li-fúl*, as much as fills the belly. BELLY-ACHE, n. *běl'li-āk*, pain in the bowels. BELLY-BOUND, very costive; constipated. BELLY-BRACE, in *mach.*, a cross-brace stayed to the boiler between the frames of a locomotive. BELLY-ROLL, a roller of which the middle part is protuberant. It is used to roll land between the ridges or in hollows.

BEL-MERODACH : see MERODACH.

BEL'MONT, AUGUST: 1816, Dec. 6—1890, Nov. 24; b. Alzey, Germany: banker. Educated at Frankfort, he was apprenticed to the Rothschilds when 13 years old, appointed their agent in Italy 1833 and Cuba 1837, and opened a banking-house in New York the latter year. From 1844–50 he was consul-gen. at New York for the Austrian govt. In 1849 B. married a niece of Com. Perry (hero of Lake Erie), the daughter of Matthew C. Perry, commander of the Japan expedition of 1853. In 1853 he was appointed U. S. *chargé d'affaires* at The Hague, and 1854 minister resident, which position he resigned 1858; and has since been American correspondent for the house of Rothschild Bros., conducting at the same time a general banking business. He was a delegate to the democratic convention 1860, and during the next 12 years was chairman of the national democratic committee. He was pres. of the American Jockey Club for 20 years.

BELMONT, BATTLE OF: at Belmont, Mississippi co., Mo., opposite Columbus, Ky.; 1861, Nov. 7; between the Union forces under Gen. Grant and the Confederates under Gen. Pillow. On the day previous Columbus was occupied by a strong Confederate force under Gen. Polk, and Gen. Grant was in command at Cairo. During the night a Union force of nearly 4,000 men was sent down the Mississippi river to a point 10 m. above Columbus, and the next morning it was moved forward to capture the Confederate camp. The camp was carried by a charge, and all its supplies, ammunition, and baggage, were burned. At the moment of victory the Confederates were reinforced from Columbus, and in turn drove the Union troops back to their boats.

BELMONT, PERRY: lawyer: b. New York, 1851, Dec. 28: son of August B. He graduated at Harvard 1872, and at the Columbia College Law School 1876. He was admitted to the bar, and practiced in New York till 1881, when he was elected to congress as a democrat, and

BELOIT—BELONE.

served there by reflections till 1888, Nov. In 1885-88 B. was chairman of the committee on foreign affairs, and member of the committee on expenditures in the state dept. 1888, Nov., he was appointed U. S. minister to Spain, and 1890, Mar., received from the pres. of France the decoration of commander of the Legion of Honor, for his services during the last Paris Exposition.

BELOIT, *bě-loyt'*: a city of Wisconsin, on Rock river, on the Southern State railway, 75 m. s.w. of Milwaukee, built on two plains, one 70 ft. above the other, with broad shaded streets, groves, and handsome residences. It has a college, nine fine churches, several flour and paper mills, foundries, and manufactories of agricultural implements, etc. Pop. (1890) 6,315; (1900) 10,436.

BELOIT COLLEGE (Congl.), chartered 1846, opened 1847, had (1902) 27 professors and instructors, nearly 400 students, 4 years' college course, about 29,000 vols. in library, scientific apparatus valued at \$15,000, grounds and scientific apparatus valued at \$15,000, grounds and buildings \$119,670, permanent productive funds \$200,000, income therefrom \$14,526, tuition fees \$5,470, total income excepting board and lodging \$24,379, and benefactions \$29,565, Edward D. Eaton, D.D., LL.D., president. The college grounds comprise 25 acres, the larger part of which was a gift from the city of Beloit; and there are 8 buildings, all of which are on a beautiful bluff on the e. side of Rock river. The college has an observatory, containing a telescope of superior power; an equipment of 13 microscopes; and an excellent gymnasium. In 1889 friends of the college subscribed \$200,000 for the further development of its usefulness.

BELOMANCY, n. *běľō-măn'si* [Gr. *belos*, 'an arrow; *manteiǎ*, divination]: a kind of divination among the Arabians, etc., by shooting arrows inscribed with names, or drawn as lots, and then consulting the inscription on the first arrow found or drawn. See AXINOMANCY: DIVINING-ROD.

BELON, *bě-lōng'*, PIERRE: 1517-64, Apr.; b. Soulletière, dept. of Sarthe: French naturalist. He studied medicine at Paris, and travelled through Germany, and in 1546 through Greece, Asia Minor, Egypt, and Arabia. He returned 1549, and in 1553 published *Observations on several Singular and Memorable Things discovered in Greece, Asia, Judæa, Egypt, Arabia, and other Foreign Countries*. He was murdered by robbers when gathering herbs at night in the Bois de Boulogne. B. published, besides other treatises, the following: in 1551, *A Natural History of Strange Sea-fish, with a correct Representation and Account of the Dolphin, and several others of that Species*, which contains an exact description of the dolphin, and the earliest picture of a hippopotamus in any European book; in 1555, *A Natural History of Birds*, often quoted by Buffon, and acknowledged the most important treatise on ornithology of the 16th c.; in 1558, an elaborate and interesting work on Arboriculture.

BELONE. see GARFISH.

BELONG—BELOOCHEE.

BELONG, v. *bě-lǒng'* [Dut. *belangen*, to attain to, to concern: Ger. *gelangen*, to arrive at]: to be the property of or business of; to be an inherent quality of; to be related to or connected with; to have a residence in. **BELONG'ING**, imp. **BELONGED**, pp. *bě-lǒngd'*. **BELONG'INGS**, n. plu. those things which pertain to one, as qualities or endowments; usually said of goods, chattels, property, but sometimes applied to mental and moral qualities, faculties, talents, etc., and even to one's relations, the members of one's family or household.

BELONID, n. *běl'ō-nīd* [Gr. *belone*, needle; ending *id*, denoting family]: member of the *Belonidæ* fam. of fishes. **BELON'IDÆ**, n. plu. fam. of fishes of which *Belone* is the type genus. The Amer. gar-fish belong to the genus *Tylosurus*, family *Exocoetidae*, which now takes the place of *Belonidæ* and *Scombresæidæ*, in Jordan's *Manual of Vertebrates*. **BEL'ONOID**, a. needle-shaped; bodkin-shaped.

BELONITE, n. *běl'ō-nīt* [Gr. *belone*, needle, and *ite*]: needle-shaped, colorless, transparent microscopic crystals found in glassy, volcanic rocks.

BELOOCHEE, *bě-lô'chē*, or **BALUCHI**, *bă-lô'chē* [Pers.]: native or inhabitant of Beloochistan: language of the Baluchis, or original people of Beloochistan, as distinguished from the tribe, Brahoes, at present dominant there. The B. language belongs to the Iranic branch of the Aryan fam. of languages. It has no literature and no alphabetic characters of its own, the Arabic characters being employed whenever there is need of committing B. speech to writing. The B. people are a handsome, active race, possessing no great physical strength, but inured to changes of climate and season, and capable of enduring every species of fatigue. In their habits they are pastoral and much addicted to predatory warfare, in the course of which they do not hesitate to commit every kind of outrage and cruelty. Polygamy is universal among them. Wives are obtained by purchase, payment being made in cattle or other articles of pastoral wealth. As under the Levitical law in Israel, a man is required to marry his deceased brother's relict. In religion they are Mohammedans.

BELOOCHISTAN.

BELOOCHISTAN, or BALUCHISTAN, *bēl-ō'chīs-tān'*: country of s. Asia; bounded on the n. by Afghanistan, on the e. by British India, on the s. by the Arabian Sea, on the w. by Persia; lat. 25° — 30° n., long. 61° — 70° e.; extreme length e.—w. 550 m.; breadth 450 m.; 121,627 sq. m. It includes Independent B.; Quetta and the Bolan; British B.; and certain Afghan and Baluch tribes on the Indian frontier. The greater part of B. is ruled (1893) by a confederation of chiefs under the suzerainty of the khan of Khelat; Quetta and the Bolan are administered by Brit. officials; the Assigned Districts, formerly belonging to Afghanistan, are under Brit. rule; the dist. of Khetran came under British control 1888-9; and the country between the Zhob Valley and the Gumal Pass more recently. The principal towns are Khelat, the cap.; Quetta, now larger than the cap.; Mastang; Kozdar; Bela; Kej; Bágh; Gandáva; Dádar; and Sonmiáni. Beloochistan was almost entirely a *terra incognita* to Europeans till 1810. Most of the country is still unknown, but it has been crossed by several travellers; and the laying of the Indo-Afghan railway (completed to Quetta 1887, Mar.) through the 90 m. of desert in the n.e., as well as the surveys of the Indo-European Telegraph Company in the s., have established its general features. It is now practically a British protectorate, whose native chiefs receive small pensions from the Indian govt. The surface is generally mountainous, especially towards the n., the peak of Takkatu being said to be 11,000 ft. high. Even the bottoms of some of the valleys have an elevation of 5,700 ft.; and the cap., Kelat, situated on the side of one of them, is 6,000 ft. above the sea. The rivers are inconsiderable, unless after heavy rains: even the largest of them, the Dusti, after a course of about 1,000 m. has been found only 20 inches deep, and 20 yards wide at its mouth. The pastures are exceedingly rich, the country forming an immense camel-grazing region, and supporting large numbers of cattle, sheep, and goats. The n.w. part is noted for its horses, and steps have been taken recently to improve the native breed by the importation of thoroughbreds, Norfolk trotters, and Arabian stallions. The scanty and uncertain rainfall limits the agricultural produce; but most of the crops found in India do well here. The chief minerals are coal, copper, lead, antimony, iron, sulphur, alum, and sal-ammoniac. Manufactures are unimportant. Chief exports are wood, hides, madder, dried fruit, tobacco, and dates. The religion is Mohammedan, and trade is almost exclusively in the hands of Hindus. The khan keeps a personal army of 1,200 men, and can asserable about 10,000 tribal irregulars. There are numerous native fortifications of no strength, and several modern ones erected by the British. B. had (1893) teegraph and submarine cable lines, and a new railway was projected. In 1832 the royal city of B. was taken by storm by the British because of the treachery of the khan; 1841 it was again taken and held temporarily; 1857 Mir Khudadad came to the throne; 1877 the British by treaty permanently occupied Quetta, and established a polit.

agent at Khelat; and 1893, Apr., the khan caused a number of his wives to be cruelly put to death and was charged with having murdered and tortured many high officials, for which he was compelled by the Brit. Indian govt. to release his surviving prisoners, explain his action, pay a fine of 40,000 rupees, to be distributed among the families of his victims—and was deposed. Pop. (1901), British and independent, about 810,000.

BELoved, a. *bě-lŭv'ěd*: PP. *bě-lŭv'd'* [AS. *be*, intensive; *lufian*, to love]: much loved; greatly esteemed; dear to the heart.

BELOW, prep. *bě-lō'* [*be* and *low*]: under; unworthy of: AD. in a lower place.

BELPASO: town of Sicily, on the lower part of the s. slope of Mount Etna, in the province and 8 m. n.w. from the town of Catania. Below the town is an expanse of brown lava, but the surrounding country is generally rich and fruitful. A town called Mel Passo, from the abundance of honey in its neighborhood, stood not far from the site of the present town, but was destroyed by an eruption in 1669; when the inhabitants removed a few miles off, in the plain, and built a town of which the desolate remains bear the name of *Belpasso Vecchio*; malaria compelled them to leave it, and to return to the mountain-slope, notwithstanding its occasional dangers. Pop. abt. 7,500.

BELPER, *běl'pēr*: market town of Derbyshire, Eng., on the Derwent; a station on the North Midland railway, 7 m. n. from Derby. It is well built, in great part of gritstone, obtained in the neighborhood. One of the most conspicuous public buildings is a church, of recent erection, on an eminence above the town; the union workhouse is also worthy of notice, being a splendid building in the Elizabethan style of architecture. B. is, to a considerable extent, a town of recent growth, and owes its prosperity to the establishment of cotton-works here by Messrs. Strutt, one of whom was elevated to the peerage as Lord Belper. In these works a very great number of operatives are employed. The manufacture of silk and cotton hosiery is also largely carried on in B. Nail-making and the manufacture of brown earthenware employ many of the inhabitants. The surrounding country is rich in coal, iron, lead, and limestone. B. was at one time the residence of John of Gaunt, part of whose mansion still remains. Pop. (1881) 9,875; (1891) 10,420.

BELSHAM, *běl'sham*, THOMAS: 1750–1829; b. Bedford: English Unitarian theologian. He was educated a Calvinist, and became pastor of a congregation and head of the theological acad. at Daventry. These offices he resigned 1789, embracing Unitarian views, and shortly after received the charge of a new theological acad. at Hackney, which in a few years was given up for want of funds. He succeeded Dr. Priestley in his pastoral charge, and in 1805 became the successor of Dr. Disney, in London, where he continued till his death. Most of his works are controversial: his doctrine regarding the person of Christ represents the purely

‘humanitarian’ view, as distinguished from the more nearly Arian sentiments of Channing. He published also a work on mental and moral philosophy, following Hartley, and a memoir of his predecessor, Theophilus Lindsey. His bro. William (1752–1827), was an active and voluminous writer of history and political tracts on the side of the whigs.

BELSHAZZAR, *běl-shăz'zar*, or **BELSA'ZAR**, or **BEL-SHAR-EZAR**: last king of the Chaldæan dynasty in Babylon. The name occurs only in the Old Test.; and the account there given, formerly supposed irreconcilable with that by Herodotus and Berosus, has, by recent discoveries been shown to be confirmed by those writers. It appears that Bel-sar-uzar was the eldest son of King Nabonidus, and shared the government with him—Bel-sar-uzar holding Babylon and perishing in its capture by the Medes and Persians; ‘while Nabonidus, leading a force to the relief of Babylon, was defeated, and was compelled to capitulate at Borsippa’ (*Sir Henry Rawlinson*).

BELSIRE, n. *běl'sîr* [F. *běl*, fine; *sire*, lord, sir]: a celebrated ancestor; a grandfather.

BELT, n. *bělt* [Icel. *belti*; L. *baltĕus*, a girdle or belt: Gael. *balt*, border, a belt]: a band or girdle; a strap by which a sword or other thing is hung: V. to encircle as with a belt. **BELT'ING**, imp. **BELT'ED** pp.: **ADJ.** girt with a belt; arrayed in armor. **ABDOMINAL BELT**, broad elastic band worn about the abdomen, for support during pregnancy, etc. **MAGNETIC BELT**, series of metal plates bound together, and fastened on some absorbent material, kept moist with dilute acids: such belts are sold as cure-alls by certain persons.

BELT (signifying Girdle): name given to two straits, the **GREAT** and the **LITTLE B.**, which with the Sound connect the Baltic with the Cattegat. The **GREAT B.**, about 40 m. in length, and varying in breadth from 10 to more than 20 m., divides the Danish islands, Seeland and Laaland, from Fünen and Langeland. The **LITTLE B.** divides the island of Fünen from Jütland. It is equal in length to the Great B., but much narrower. Its greatest breadth is about 10 m., but it gradually narrows towards the n., until at the fort of Frederica it is less than a mile wide; thus the passage from the Cattegat into the Baltic is here easily commanded. Both the Belts are dangerous to navigation, on account of numerous sandbanks and strong currents; and therefore, for large vessels, the passage by the Sound (q.v.) is preferred.

BELTANE.

BELTANE, n. *běltān*, or BELTEIN, n. *běltīn* [Gael. *Bealteine*, Bel's fire; *Bealtuinn*, May-day—*Bel* being the name for the sun; Gael. *teine*, fire], called also BEILTINE or BEALTAINN: a heathen festival of remote antiquity, common to all the Celtic nations, and traces of which survive to the present day. Beal or Beil was the Celtic god of light or Sun-god, a deity mentioned by Ausonius (309—392) and by Tertullian (first half of the 3d c.), also on several ancient inscriptions, as Belenus or Belinus. B. belongs to that sun and fire worship, always one of the prominent forms of polytheism. The great festival of this worship among the Celtic nations was in the beginning of May, but there seems to have been a somewhat similar observance in the beginning of November (thus at the beginning and the end of summer). On such occasions, all the fires in the district were extinguished (while the system was in full force, even death was the penalty of neglect); the *needfire* (q.v.) was then kindled with great solemnity, and sacrifices were offered—latterly, perhaps, of animals, but originally, there can be little doubt, of human beings. From this sacrificial fire the domestic hearths were rekindled.

The earliest mention of B. is found by Cormac, Abp. of Cashel in the beginning of the 10th c. A relic of this festival, as practiced in some parts of the Highlands of Scotland about the beginning of the 19th c., is thus described: 'The young folks of a hamlet meet in the moors on the 1st of May. They cut a table in the green sod, of a round figure, by cutting a trench in the ground of such circumference as to hold the whole company. They then kindle a fire, and dress a repast of eggs and milk in the consistence of a custard. They knead a cake of oatmeal, which is toasted at the embers against a stone. After the custard is eaten up, they divide the cake in so many portions, as similar as possible to one another in size and shape, as there are persons in the company. They daub one of these portions with charcoal until it is perfectly black. They then put all the bits of the cake into a bonnet, and every one, blindfold, draws out a portion. The bonnet-holder is entitled to the last bit. Whoever draws the black bit is the devoted person, who is to be sacrificed to Baal, whose favor they mean to implore in rendering the year productive. The devoted person is compelled to leap three times over the flames.' The leaping three times through the fire is clearly a symbolical sacrifice, and there was doubtless a time when the victim was bound on the pile, and burned. See SACRIFICE.

It has been usual to identify the worship of the Celtic Beal with that of the Baal (q.v.) or Bel of the Phœnicians and other Semitic nations. It is unnecessary, however, to go beyond the family of nations to which the Celts belong (see ARYANS), in order to find analogies either for the name or the thing. J. Grimm (*Deutsche Mythologie*, i. 208, 581) identifies the Celtic Beal not only with the Slavonic *Belbog* or *Bjelbog* (in which name the syllable *bel* or *bjel* means white, and *bog*, god), but also with the Scan-

dinavian and Teutonic Balder (q.v.) or Paltar, whose name appears under the form of Baldag (the white or bright day), and who appears to have been also extensively worshipped under the name of Phol or Pol. The universality through Europe in heathen times of the worship of these personifications of the sun and of light through the kindling of fires and other rites, is testified by the yet surviving practice of periodically lighting *bonfires* (q.v.). The more marked turning-points of the seasons would naturally determine the times of these festivals. The two solstices at midwinter (see YULE) and midsummer, and the beginning and end of summer, would be among the chief seasons. The periods of observance, which varied, no doubt, originally, in different places, were further disturbed by the introduction of Christianity. Unable to extirpate these rites, the church sought to Christianize them by associating them with rites of her own, and for this purpose either appointed a church-festival at the time of the heathen one, or endeavored to shift the time of the heathen observance to that of an already fixed church-festival. All over the south of Germany, the great bonfire celebration was held at midsummer (*Johannisfeuer*) (see JOHN'S, EVE OF ST.)—a relic, probably, of the sun-festival of the summer solstice; throughout the north of Germany, it was held at Easter. It is probable that this fire-festival (*Osterfeuer*) of Ostara—a principal deity among the Saxons and Angles—had been originally held on May 1, and was shifted to coincide with the church-festival now known as Easter (q.v.: see also WALPURGA, ST.). The seriousness and enthusiasm with which these observances continued to be celebrated in the 16th and 17th c. has declined, and the kindling of bonfires has been mostly put down by the governments; the earlier interdicts alleging the unchristian nature of the rites; the later, the danger occasioned to the forests.

In Great Britain, St. John's Eve was celebrated with bonfires; and Easter had its fire-rites, which, although incorporated in the service of the Rom. Cath. church, were clearly of heathen origin. But the great day for bonfires in the British islands was Nov. 1. Fewer traces of this are found in other countries, and therefore it must be judged as more peculiarly Celtic. While the May festival of B. (in Ireland B. is traced in some observances still held June 21) was in honor of the sun-god, in his character of god of war—who had just put to flight the forces of cold and darkness—the November festival was to celebrate his beneficent influence in producing the fruits which had just been gathered in. Hence it was called *Samhtheine* (peace-fire). From the traces that remain or have been recorded, the November observances seem to have been more private, every house having its bonfire and its offerings, probably of fruits, concluding with a domestic feast. The B. festival was public, and attended by bloody sacrifices. Although the November bonfires, like B., were probably of Celtic origin, they seem to have been adopted by the inhabitants of the

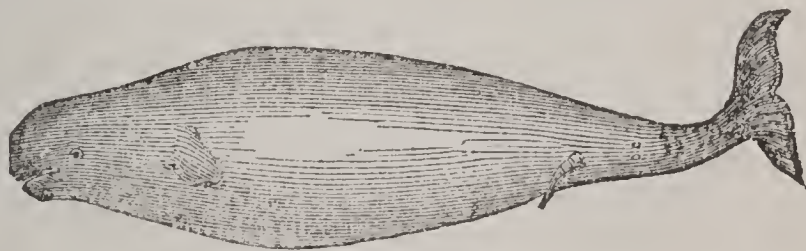
British Islands generally. About the end of last century they were still kindled in various parts of England, and to this day, over whole districts of Aberdeenshire, every rural dwelling has its Hallowe'en bonfire lighted at night-fall in an adjoining stubble-field.

The Anglo-Saxon population of England had their own characteristic May-day rites; but there exist traces also of the observance among them on that day of rites similar to the Celtic Beltane. An 'Old Holne Curate,' writing to *Notes and Queries* in 1853, says: 'At the village of Holne, situated on one of the spurs of Dartmoor, is a field of about two acres, the property of the parish, and called the Ploy (play) Field. In the centre of this stands a granite pillar (Menhir) 6 or 7 feet high. On May morning, before daybreak, the young men of the village assemble there, and then proceed to the moor, where they select a ram lamb (doubtless with the consent of the owner), and after running it down, bring it in triumph to the Ploy Field, fasten it to the pillar, cut its throat, and then roast it whole, skin, wool, etc. At midday, a struggle takes place, at the risk of cut hands, for a slice, it being supposed to confer luck for the ensuing year on the fortunate devourer. As an act of gallantry, in high esteem among the females, the young men sometimes fight their way through the crowd to get a slice for their chosen among the young women, all of whom, in their best dresses, attend the *Ram Feast*, as it is called. Dancing, wrestling, and other games, assisted by copious libations of cider during the afternoon, prolong the festivity till midnight.

'The time, the place (looking east), the mystic pillar, and the ram, surely bear some evidence in favor of the Ram Feast being a sacrifice to Baal.'

For additional notices of this sun and fire worship, see YULE: CANDLEMAS: LAMMAS: and other titles referred to in this article.

BELUGA, n. *bē-lō'gǎ* [*Delphinapterus*]: genus of *Cetacea* (q.v.), of the family of *Delphinidae* or Dolphins (q.v.), differing from the rest of that family in the blunt and broad head, which has no produced snout; the smaller number of teeth, the greater part of which often fall out before the animal is far advanced in age; and the want of a dorsal fin.



Beluga.

The only species found in the n. parts of the world is *D. catodon* (for which name there are unhappily many synonyms, as *B. leucas*, etc.), the White Whale and White Fish of whalers, often called by English writers the B., and the

BELUS—BELVISIA.

Round-headed Cachalot. The form of the B. is remarkably characterized by the softness of all its curves, and adapts it for rapid and graceful movements; its skin is usually of a clear white color, and not very strong, so that it often fails to retain a harpoon. The B. attains a length of more than 13 ft. The female brings forth two young ones at a birth, and shows great solicitude for them. The food of the B. consists of fish, in pursuit of which it often ascends rivers to some distance. It is gregarious, and may be seen in herds of forty or fifty, which often gambol around boats; it abounds in most parts of the arctic seas, and sometimes, but not very frequently, visits the British shores. The Greenlanders take the B. with harpoons or with strong nets. Its flesh affords them a valuable supply of food, and is eaten by most of the inhabitants of arctic coasts; it affords also a considerable quantity of the very finest oil, and the skin is made into leather. Some of the internal membranes also are employed for various purposes.—Another species of B. is found in the southern hemisphere, called *B. Kingii*.

BELUS: see BAAL.

BELVEDERE, n. *běl'vě dēr'* [It. *belvedere*—from L. *bellus*, fine, neat; *vidērē*, to see]: originally an erection on the top of a house, or an open gallery or corridor, for the purpose of looking out on the surrounding country, and enjoying the air, in which sense it is still understood in Italy. A part of the Vatican (q.v.) in Rome is known as the B., and gives name to the famous statue of Apollo. In some other countries, the word has come to signify any kind of summer-house or place of refreshment.

BELVEDERE' (*Kochia scoparia*, *Chenopodium scoparium*, or *Salsola scoparia*): annual plant of the nat. ord. *Chenopodiaceæ* (q.v.); native of the middle and s. of Europe, and of great part of Asia; ornamental not by its flowers, which have no beauty, but by its close, pyramidal, rigid form, and numerous narrow leaves, which make it appear like a miniature cypress-tree. It is sometimes called SUMMER CYPRESS.

BELVISIA, *běl-věz'ia* (also called NAPOLEO'NA): genus of exogenous plants, type of the nat. ord. *Belvisiaceæ*, of which order only a very few species have been discovered, natives of the tropical parts of Africa. They are large shrubs, with smooth, simple, leathery leaves. The flowers grow in threes, sessile in the axils of the leaves, and are beautiful and extremely curious. The calyx is a thick, leathery cup, divided into five ovate segments. The corolla consists of three distinct rings; the outer one 5-lobed, and furnished with ribs, by means of which it is strongly plaited, turning back over and hiding the calyx when full blown; the second, a narrow membrane, divided into numerous regular segments like a fringe; the third, an erect cup-shaped membrane. The stamens are erect like another cup; the ovary 5-celled, with two ovules in each cell; the style short, thick, and 5-angled, with a broad, flat, 5-angled stigma. The fruit is a soft berry, crowned with the calyx,

with large kidney-shaped seeds. The wood is soft, and contains numerous dotted vessels.—The pulp of the fruit of the best-known species is mucilaginous and eatable, the rind very full of tannin; the fruit is as large as a pomegranate, and the seeds $1\frac{1}{4}$ inches long.—The position of this remarkable order in the botanical system is not yet well determined. Lindley regards it as most nearly allied to *Rhizophoraceæ* (Mangroves, q.v.). It is supposed by some that the two inner rings of the corolla should be regarded as sterile stamens, and the place of the order is thus fixed near *Barringtoniaceæ* (q.v.).

BELZONI, *bel-zō'nē*, GIOVANNI BATTISTA: 1778–1823, Dec. 3.; b. Padua; son of a poor barber. He was educated at Rome, for the priesthood, but turned to mechanical science, especially hydraulics. About 1800, he visited Holland, and in 1803 England. For a time he gained a living by exhibiting feats of strength in the theatres. At Astley's, he played the part of Hercules; but he continued his mechanical studies, and gave numerous hydraulic representations in the most populous towns of the kingdom. After nine years in England, he went to Spain and Portugal, in his capacity of theatrical athlete. From the peninsula, he passed to Malta, and thence to Egypt, 1815, on the invitation of Mehemet Ali, who wished him to construct a hydraulic machine. After succeeding in this undertaking, he was induced, by the travellers Burckhardt and Salt, to direct his attention to the exploration of Egyptian antiquities. He threw himself with ardor into his new vocation. He removed the colossal bust of the so-called 'Young Memnon' from the neighborhood of Thebes to Alexandria, and was the first who opened the temple of Abu-Simbel. In the valley of 'the royal graves'—Biban-el-Moluk—near Thebes, he discovered several important catacombs containing mummies, and among others opened, 1817, the celebrated tomb of Psammetichus, from which he removed the splendid sarcophagus, now, with the 'Young Memnon,' and other results of B.'s labors, in the British Museum. But B.'s greatest undertaking was his opening of the pyramid of Cephren. An attempt made on his life caused his departure from Egypt, but previously he made a journey along the coast of the Red Sea, and another to the Oasis of Siwah, hoping there to find ruins of the temple of Jupiter-Ammon. In the course of his explorations, he discovered the emerald mines of Zubara and the ruins of Berenice, the ancient commercial entrepôt between Europe and India. In 1819, Sep., he returned to Europe, visited his native town, Padua, and enriched it with two Egyptian statues of granite. He published in London his *Narrative of the Operations and Recent Discoveries within the Pyramids, Temples, Tombs, and Excavations in Egypt and Nubia; and of a Journey to the Coast of the Red Sea in search of the ancient Berenice, and another to the Oasis of Jupiter-Ammon* (1821, with an atlas of 44 colored engravings). In 1821, he opened in London an exhibition of his Egyptian antiquities, but soon afterwards undertook a journey to Timbuktu, central Africa.

At Benin, he was attacked by dysentery, and returned to Gato, where he died. His original drawings of the royal tombs that he had opened in Egypt were published by his widow (London, 1829).

BEM, *bēm*, JOSEPH: 1795-1850, Dec. 10; b. Tarnov, Galicia: commander of the army in Transylvania during the Hungarian revolution, 1848-9. After a course of military adventure in Poland, he went to France, where he earned a livelihood by teaching mechanics and mnemonics. In 1848, after failing in an attempt to organize an insurrection in Vienna, he joined the Hungarians, and was intrusted with the command of the army of Transylvania, 8,000-10,000 men. After some checks from the Austrian army, he defeated them at Hermannstadt and the bridge of Piski; and succeeded in driving both them and their allies, the Russians, back into Wallachia, 1849, March. Having thus made himself master of Transylvania, he proposed, by amnesties and general mild rule, to gain the adherence of the German and Slavonian population, especially in Wallachia; but his propositions were not entertained by Kossuth and the Hungarian commissariat. After expelling the troops under Puchner from the Banat, B. returned into Transylvania, where the Russians had defeated the Hungarians. Here he reorganized his forces, and did all that was possible in his circumstances to prevent the union of the Russians with the Austrians, but his efforts were unsuccessful. After failing in an attempt to excite an insurrection in Moldavia, he was defeated in a battle near Schäßzburg, where he was opposed to three times the number of his own troops. At Kossuth's request, he now hastened into Hungary, where he took part in the unfortunate battle near Temesvar. Retreating into Transylvania, he defended himself for some days against a vastly superior force, and then made his escape into Turkey, where he embraced, from political motives, the profession of Islam, was raised to the dignity of a pasha, and obtained a command in the Turkish army. In 1850, Feb., he was sent to Aleppo, where, after suppressing the sanguinary insurrection of the Arabs against the Christian population, he died of fever. In private life B. was benevolent, and, as a military leader, was distinguished by courage, presence of mind in extreme danger, and remarkable rapidity of movement.

BEMA, n. *bē'mă* [Gr. a tribunal]: a raised structure for an elevated seat; a bishop's throne. In *anc. Greece*, the B. was the platform from which a public speaker addressed an assembly: in the *Gr. Church*, the sanctuary or chancel, the inclosed place at whose centre stands the altar, with the bp.'s throne at its rear; it is somewhat raised above the level of the main church.

BEMBATOKA, *bēm-bā-tō'kâ*, BAY OF: safe and commodious bay on the n.w. coast of Madagascar; lat. 16° s., long. 46° e. The Betsiboka river, with the Ikiopa, drains into the bay; the former, which is about 300 m. long, is navigable for small steamers for about 90 m. Mojanga,

on the n. side of the bay of B., is a town of about 14,000 inhabitants.

BEMBECIDÆ, *bēm-bēs'ī-dē*: family of hymenopterous insects of the division in which the females are furnished with stings. With *Sphegidae* (q.v.), and other nearly allied families, they receive the popular name of Sand-wasps. They very much resemble bees or wasps in general appearance. They are natives of the warmer parts of the world. Some of them are remarkable for the odor of roses which they emit. The females make burrows in sandy banks, in each of which they deposit an egg, and along with it the bodies of a few flies as food for the larva. The B. fly very rapidly, and with a loud buzzing noise. *Bembex rostrata* is common in the s. of Europe.

BEMBO, *bēm'bō*, PIETRO: 1470, May 20—1547, Jan. 18; b. Venice: celebrated Italian scholar of the 16th c. He studied at Padua and Ferrara. He edited the Italian poems of Petrarch, printed by Aldus, 1501, and the *Terzerime* of Dante, 1502. In 1506, he proceeded to the court of Urbino, whence, 1512, he went to Rome, and was made sec. to Pope Leo X. On the death of Leo, B. returned to Padua, where he became a liberal patron of literature and the arts, as well as a fertile writer. In 1529, he was made historiographer to the republic of Venice, and keeper of St. Mark's Library. In 1539, B., who had taken only the minor ecclesiastical orders, was unexpectedly presented with a cardinal's hat by Pope Paul III., who afterwards appointed him to the dioceses of Gubbio and Bergamo. B. united in his character all that is amiable. He was the restorer of good style in both Latin and Italian literature, having had a taste so fastidious that he is said to have subjected each of his own writings to forty revisions previous to publication. Some of his writings are marred by the licentiousness of the time. Among his works may be mentioned the *Rerum Veneticarum Libri XII.* (Venice, 1551), of which he published an Italian edition (Venice, 1552); his *Prose*, dialogues in which are given the rules of the Tuscan dialect; *Gli Asolani*, a series of disputations on love, etc.; *Rime*, a collection of sonnets and canzonets; his Letters, Italian and Latin; and the work, *De Virgilio Culice et Terentii Fabulis*. His collected works were published at Venice, 4 vols., 1729.

BEMBRIDGE BEDS: a division of the Upper Eocene strata, resting on the St. Helen's, and capped by the Hempstead series; developed principally in the Isle of Wight. Ed. Forbes, who carefully examined them there, has arranged them in four subdivisions: 1. The upper marls and laminated gray clays, which form the basement bed of the 'black land,' the lowest member of the Hempstead series; distinguished by the abundance of *Melania turretilissima*. 2. Unfossiliferous mottled clays, alternating with fossiliferous marls and clays whose characteristic organisms are *Cerithium mutabile* and *Cyrena pulchra*. 3. The oyster-bed, of greenish marl, containing immense quantities of a species of oyster (*Ostrea Vectensis*) with

Cerithia, *Mytili*, and other marine mollusca. 4. The Bembridge limestone, generally a compact, pale-yellow, or cream-colored limestone, but sometimes vesicular and concretionary, and containing occasionally siliceous or cherty bands. This is interstratified with shales and friable marls. All the beds are fossiliferous, containing numerous land and fresh-water shells. One bed is composed almost entirely of the remains of a little globular *Paludina*. Shells of *Lymnea* and *Planorbis* are abundant, and are accompanied with the spirally striated nucules of two species of *Chara*, water-plants which have been well preserved because of the large quantity of lime which enters into their composition. In this division have been found the mammalian remains of the species of *Palæotherium* (q.v.) and *Anoplotherium* (q.v.) which characterize the gypseous deposits of Montmartre; it is consequently considered the British equivalent of these Parisian beds.

No marked line of distinction separates this series from the St. Helen's beds on which it rests. The contained organisms indicate that both had the same fluvio-marine origin. The maximum thickness of the Bembridge series is 115 ft.

BEMIRE, v. *bě-mīr'* [AS. *be*; Icel. *myri*, a swamp]: to soil, as with mud, in passing through dirty places. **BEMIR'ING**, imp. **BEMIRED**, pp. *bě-mīrd'*.

BEMOAN, v. *bě-mōn'* [AS. *bi*, *mœnan*, to moan]: to lament; to express sorrow for; to bewail. **BEMOAN'ING**, imp. **BEMOANED**, pp. *bě-mōnd'*. **BEMOAN'ER**, one who bemoans.—**STN.** of 'bemoan': to bewail; lament; deplore.

BEMOCK, v. *bě-mōk'* [*be*, to make; and *mock*]: in *OE.*, to treat with mockery.

BEN, n. *bēn* [Scot.]: in *Scot.*, an inner apartment. See **ENT**.

BEN, or **ABEN**, or **AVEN**, or **EBN**, or **IBN**: forms, in the different Semitic languages, of the same word, which means 'son,' and is used as a prefix to names. *Ben*, a Hebrew form, is familiar to us from its use in Bible names—e.g., Benhadad, son or worshipper of Hadad, or Adod, chief idol of the Syrians; Benoni, son of my pain; Benjamin, son of the right hand, etc. These examples show that not only literal but metaphorical sonship is expressed by this prefix. This form of constructing a name by composition was common in the Semitic languages, on account of their lack of patronymics. The plural, *Beni*, is found in the names of many Arab tribes—as Beni Omayyah, sons of Omayyah, the family known in history as the Ommyades; and sometimes in the names of places—as Beni-Hassan.

BEN, or **BEIN**, or **BHEIN**: Gaelic word signifying 'mountain' or 'mountain head.' It is prefixed to the name of many mountains in Scotland—as Ben Nevis, Ben Macdhuì, Ben Cruachan, etc. The corresponding term in various parts of Europe is *Pen*, found in many of the names in Cornwall and Wales, in the Pennine Alps, and probably also in the word Apennines and the Cevennes of France.

BEN—BENARES.

BEN, OIL OF: fluid fixed oil, obtained from the seeds of a tree found in India and Arabia, and known as the **HORSERADISH TREE** (*Moringa pterygosperma*). The seeds are called **BEN NUTS**, and are roundish, with three membranous wings. The oil is used by watchmakers, because it does not readily freeze; also by perfumers, as the basis of various scents; and other oils are often adulterated with it. See **HORSERADISH TREE**.

BENARES, *běn-ă'rěz* (better spelled *Banâras* or *Vârânasi*): city on the left side of the Ganges, which here varies, according to the season, between 50 and 92 ft. in depth, and in width between 600 yards and a little more than half a mile; in lat. $25^{\circ} 17' \text{ n.}$, long. $83^{\circ} 4' \text{ e.}$; 421 m. to the n.w. of Calcutta, and 466 and 74 respectively to the s.e. of Delhi and Allahabad. Without reckoning Secrole, which, at the distance of 2 or 3 m. westward, contains the official establishments, B. covers a kind of amphitheatre of 3 m. in front, and 1 m. in depth, the immediate margin of the river, which is comparatively steep, being occupied chiefly by flights of steps, or ghats, as they are called, where crowds of all classes spend the day in business, amusement, or devotion. This lively scene, backed by the minarets of about 270 mosques, and the pinnacles of over 1,400 pagodas, presents a highly picturesque appearance from the opposite shore of the Ganges. On closer inspection, the city, as a whole, disappoints a visitor. The streets, or rather alleys, altogether impracticable for wheeled-carriages, barely afford a passage to individual horsemen or single beasts of burden; and these thoroughfares are shut out from sun and air by buildings of several stories. Yet many of the houses are very handsome and elaborately ornamented.

In the traditions of the country, B. is believed to have been coeval with creation; and not entirely unauthentic history does assign to it a really high antiquity. In its actual condition, however, B. is modern. Both in extent and in embellishment, it owes much to the influence of Mahratta ascendancy, which dates from the close of the 17th c.; and it has perhaps, not a single structure that reaches back to the close of the 16th. As the central seat of Hinduism, B., on high occasions, attracts immense crowds of pilgrims—sometimes as many as 100,000; and some years ago, during an eclipse of the moon, forty persons were trampled to death in the streets. Naturally enough, the Brahmins of B. have always been remarkable for bigotry. Now, however, Brahminism appears on the decline; and a result, which Mohammedan persecution vainly tried to produce, seems to be gradually achieved, chiefly through the introduction of European literature and science. On the Sanskrit College, instituted 1792, there was at a later date ingrafted an English department, comprising poetry, history, mathematics, and political economy. It is attended by numerous Hindus, and a few Mussulmans and native Christians. B., as Heber has observed, is very industrious and wealthy, as well as very holy. Besides ex-

• BENARES—BENAVENTE.

tensive manufactures in cotton, wool, and silk, its commanding position on the grand line of communication—road, river, and rail alike—renders it the principal emporium of the neighboring regions. It is the great mart for the shawls of the n., the diamonds of the s., and the muslins of the e.; while it circulates the varied productions of Europe and America over Bundelcund, Goruckpore, Nepal, etc. For the general history of the city, see BENARES (District). For details of the mutiny of 1857, see SECROLE. See Sherring's *Sacred City of the Hindus* (1868). Pop. of B. (1891) 219,467.

BENA'RES, or BANA'RAS: district in India under the lieut. governorship of the Northwest Provinces; bounded w. and n. by Jounpur; e. by Ghazeepore and Shahabad; s. and w. by Mirzapore. It extends in n. lat. between $25^{\circ} 7'$ and $25^{\circ} 32'$, and in e. long. between $82^{\circ} 45'$ and $83^{\circ} 38'$; about 30 m. by about 55; 998 sq. m. The district is traversed by the Ganges in a n.e. direction for about 45 m. Besides other rivers, such as the Karamnasa, the Goomtee, and the Burna, and several inferior streams, lakes and tanks are numerous but small, the largest not exceeding a mile in circuit. The annual rainfall, though averaging less than in the lower parts of the Ganges, is considerable, always exceeding 30 inches, and amounting in 1823 to 89 inches. Considering that the tract is barely within the tropics, and but little elevated above the sea, the range of the thermometer is unusually great, being between 45° in January, and 111° in May. The mean temperature is stated at 77° , nearly the middle point between the two extremes. The soil, though here and there sterile, is in general characterized by great fertility, more particularly to the left of the Ganges. In the growth of opium, indigo, and sugar—more especially of the last—the district surpasses nearly every other portion of British India. In fact, the state of agriculture is such as may be expected from the density of the population. The rich fields, the thriving villages, and the luxuriant groves render the aspect of the country delightful; and perhaps the best proof of the presence of industry and civilization is the fact that elephants, rhinoceroses, buffaloes, lions, and tigers, hunted in 1529, have entirely disappeared. After a Hindu domination, according to popular faith, of 2,400 years, the district sank under the Mussulman yoke, 1193; and in the first half of the 16th c., it was annexed by Baber to the Mogul empire. On the dismemberment of that dominion, it fell to the share of the Nawab of Oude, whose grandson, 1775, ceded it to the East India Company, about ten years after that body had acquired the sovereignty of Bengal. Pop. (1881) 892,684; almost 900 to a sq. m.; inhabited houses, over 100,000; (1891) 10,632,190.

BENATEK, *bā-nă'těk*: small town of Bohemia, on the right bank of the Iser, a few miles distant from Prague; for a long time the residence of the celebrated astronomer Tycho Brahé.

BENAVENTE, *bā-nă-věn'tā*: town of Spain, province of Zamora; on the w. or right bank of the Esla, opposite the mouth of the Cea, 34 m. n. from Zamora. It is over-

BENBECULA-BENCH.

looked by a huge half-ruined castle, and surrounded by a decayed mud-wall, in which are six gates. It has spacious streets and squares, six churches, a number of schools, three hospitals, a bishop's palace, etc. The castle was formerly the seat of the family of Pimentel, Counts of Benavente, to whose progenitor it was granted 1394. The interior of the castle was desolated by Soult, on his retreat from Oporto, and fragments of sculpture still lie scattered about. At B. Moore's retreat commenced, 1809, Dec. 28. B. is now a dull and poverty-stricken place, chiefly of mud cottages. There is no bridge; the Esla is crossed by a ferry-boat. Pop. 4,500.

BENBECULA, *bĕn-bĕk-o'lā*: one of the Hebrides, or Western Isles of Scotland, between North and South Uist, 20 m. w. of Skye; belonging to Inverness-shire. It is 8 m. long and 8 broad, low and flat, and consists chiefly of bog, sand, and lake, resting on a substratum of gneiss rock, with a very broken coast-line. The people are fishermen and small farmers, who fertilize the soil with the seaweed cast ashore on the island. Pop. (1881) 1,661; (1891) 1,750.

BENBOW, *bĕn'bō*, **JOHN**: English admiral, 1650-1702, Nov. 4; b. in Shropshire. He distinguished himself first as captain of a merchantman, in a bloody action with Saltee pirates. James II. gave him a commission in the navy. After the Revolution, he obtained the command of a large ship, and in the course of a few years was made rear-admiral. The most memorable of this gallant sailor's exploits was his last, where his stubborn valor contrasted nobly with the dastardly behavior of his captains. Off St. Martha, in the West Indies, 1702, Aug. 19, he came up with a superior French force under Admiral Du Casse. For four days he kept up a running-fight with the enemy, almost deserted by the rest of his squadron. On the morning of the 24th, his right leg was smashed by a chain-shot. As soon as his wound was dressed, he was carried to the quarter-deck, and directed the fight while it lasted. The enemy sustained severe loss; but the infamous cowardice of the other captains, who actually refused to obey the admiral's signals, made the contest hopeless, and B. sailed away to Jamaica. He died of his wound. The recusant officers were tried by court-martial, and two captains were shot. B.'s employment of explosive vessels at St. Malo seems to have been an anticipation of Lord Dundonald's method at Basque Roads.

BENCH, *n.* *bĕnsh* [AS. *henc*: Dan. *bānk*: Icel. *bekkr* (see **BANK**)]: a long seat of wood or stone; a strong table; the seat of the judges; the judges or magistrates on it: V. to furnish with benches. **BENCHER**, *n.* *bĕnsh'ēr*, one of the senior members of an Inn of Court, the body charged with the management of its affairs. **BENCH'ERSHIP**, *n.* the condition or dignity of a bencher. **BENCHMARK**, in *surveying*, a mark showing the starting-point in levelling along a line; also any one of a series of similar marks which show where the levelling-staffs were placed when the various levels were read. **BENCH SHOW**, a public show of dogs, usually placed on long platforms or benches.

BENCH—BEND.

BENCH: the dais or elevated part of a court-room or chamber where the judges sit to administer the laws. In English courts of justice, this seat is in form literally a bench or couch along one end of the court-room, the number of judges and their places on this bench being marked by separate desks, one for each judge; but in the United States, chairs, set in a row on a platform, take the place of the bench. The term *B.* is applied also to the judges as a class; thus we speak of the *B. and bar*. It has likewise, popularly and conventionally, in England, an ecclesiastical application, the bishops of the Church of England being, as a body, sometimes designated by it; hence the expression, ‘*B. of Bishops.*’ See **BANC**.

BENCH, COMMON, COURT OF: in England, a technical name sometimes given to the Court of Common Pleas: see **COURTS OF COMMON LAW**.

BENCH, KING’S or QUEEN’S: in England, the supreme court of common law in the kingdom: see **COURTS OF COMMON LAW**.

BENCH, UPPER: name given to the Court of King’s Bench in the time of Cromwell: see **COURTS OF COMMON LAW**.

BENCHERS, *běnch’ērz*: members of the governing bodies of the four great Law Societies in England, or Inns of Court—Lincoln’s Inn, Inner Temple, Middle Temple, and Gray’s Inn—are so called. They are generally queen’s counsel or barristers of distinction; and they annually elect a president or *treasurer*, as he is called, who takes the chair at their corporate meetings, and speaks and acts in their name: see **INNS OF COURT**.

BENCH-WARRANT: order of a judge or court for the attachment or arrest of an offender. It issues in cases of indictment and of contempt of court. It is often used to bring into court delinquent jurymen. See **WARRANT**.

BENCOOLEN, *běn-kō’len*: cap. of a Dutch residency on the w. coast of Sumatra; in 102° 20’ e. long., and 3° 48’ s. lat. Pop. 7,000.

The residency *B.* has an area of 9,567 sq. m. Rice, coffee, maize, sugar-cane, the cocoa-nut, and other fruits are grown. About 400,000 lbs. of pepper are produced annually. *B.* was founded by the English (1686), but was given to the Dutch by the London Treaty, 1824, Mar. 11. Pop. of dist. (1881) 143,248.

BEND, v. *běnd* [*AS. bendan*; *Icel. bendā*, to stretch]: to stretch as a bow; to crook; to incline; to turn over or round; in *naut.*, to tie or make fast; thus, to ‘bend the cable’ is to tie or make it fast: *N.* a turn; a curve. **BEND’-ING**, imp. **BEND’ED**, or **BENT**, pp.: **ADJ.** in a crooked position, as the leg at the knee. **BEN’DER**, *n.* one who or that which. **BENDABLE**, a. *běnd’ă-bl*, that may be bent. **BEND**, *n.* in *her.*, a band passing diagonally across a shield from one corner to another—see note under **ESCUAGE**. **BEND’LET**, *n.* a narrow bend. **BEND SINISTER** [*L. sinister*, on the left]: a band on a shield running from the upper right-hand

BEND—BENDER.

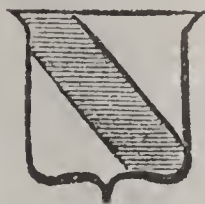
corner to the lower left-hand corner, as it appears to the eye, and denoting bastardy. BEND'Y, a. having bends which divide it diagonally into four, six, or more parts.—SYN. of 'bend, v.': to crook; curve; direct; incline; exert; apply; subdue, bow; purpose.

BEND, in Heraldry: one of the honorable ordinaries, or more important figures in Heraldry. It is formed by two parallel lines, which may be either straight, or indented, engrailed, etc. (q.v.), drawn from the dexter to the sinister base, and consequently passing athwart the shield. The B. occupies a fifth part of the shield in breadth, if plain; and a third part, if charged. The B. is supposed to represent a shoulder-belt, or scarf, worn over the shoulder.

When heralds speak of the B. simply, the B. dexter is understood, the B. sinister being always expressly mentioned.

Bend Sinister is the bend dexter reversed, and passing from the left to the right side of the shield, as the dexter does from the right to the left. See BAR and BASTARD BAR.

There are four diminutives of the Bend—viz., the *bendlet*, the *garter*, the *cost*, and the *ribbon*.



Bend.



Bendlet.



Garter.



Cost.



Ribbon.

The terms *in bend*, *per bend*, *bendy*, etc., frequent in heraldic works, signify that the charge is placed, or the shield divided, diagonally in the direction of the bend.

BENDER, *bën'der*: fortified town, with a citadel, province of Bessarabia, Russia; on the right bank of the Dniester, 48 m. from its mouth. B. has paper-mills, tanneries, forges, and saltpetre-works. In 1770, the Russians captured the place, and put the garrison and inhabitants, then amounting to about 30,000, to the sword. It was restored to the Turks, 1774, and again stormed by the Russians, 1809. Become Turkish again, it was taken possession of by Russia, 1811. Charles XII. of Sweden lived, 1709–12, at Varinitza, near Bender. Pop. including many Armenians, Tatars, Moldavians, and Jews (1887) 44,684; (1897) 31,851.

BENDIGO—BENEDEK.

BENDIGO, *bĕn'dĭ-gō*: county of the Loddon dist. in the colony of Victoria, Australia; it has the Loddon river on its w. boundary and the Carupaspe on the e.; 1,949 sq. m. The chief town, Sandhurst (q.v.), formerly Bendigo, and still familiarly so known, is in the midst of rich alluvial deposits of gold. The quartz mining operations of the dist. employ about 6,000 persons. The county is traversed by the main line of railway between Melbourne and Echuca. Pop. (1881) 56,653; (1901) 43,112.

BENDLEATHER, *n.*: a superior quality of shoe-leather.

BENE, *n.* *bĕn'e* [etym. doubtful]: the American name of the *Sesamum orientale*, or Oil-plant, called *Vangloe* in the West Indies.

BENÉ, *bā'nā*: town in the province of Mondovi, Piedmont, 18 miles n.e. of Coni. There are many ruins of an ancient Roman town here. Pop. 6,000.

BENEATH, prep. *bĕ-nĕth'* [AS. *be*, *by*; *neothan*, beneath, below]: under; lower in position or rank: AD. in a lower place; below.

BENEDEK, *bā'nĕ-dĕk*, LUDWIG VON: 1804–81, Apr. 27; b. Oedenburg, Hungary: Austrian general. He entered the army, 1822, and on the occasion of the insurrection in Galicia, 1846, he distinguished himself. In 1847, he commanded a regiment in Italy. On the occasion of the retreat from Milan, his name was mentioned in the army reports by Marshal Radetsky in the highest terms. He afterwards won renown at the taking of Mortara, and in the battle of Novara. In 1849, he commanded in Hungary, and was in several battles, being twice wounded. At the close of the Hungarian campaign, he was ordered again, high in command, to Italy. In the Italian campaign of 1859, B. commanded the eighth corps of the Austrians. At Solferino, B. drove back the Piedmontese with great slaughter, and was the last to leave the field. He was gov. of Hungary in 1860, and soon afterwards got the command of the Austrian army in that country. He commanded the Austrians in the war with Prussia, 1866, but shortly after the defeat of Sadowa he was superseded.

BENEDETTI, *bā-nā-dāt'ĭ*, VINCENT, Count: diplomatist: 1817–1900, Mar. 28; b. Bastia, Corsica. He was appointed 1855 director of political affairs to the French foreign minister, and in that capacity edited the protocols of the Treaty of Paris 1856. He was appointed ambassador at Turin 1861, and at Berlin 1864. B. will be remembered chiefly as the writer of the remarkable draft of a secret treaty between France and Prussia, pub. 1870, at the outbreak of the Franco-German war. In a pamphlet issued at Paris 1871, *Ma Mission en Prusse*, he throws its whole responsibility on Bismarck. He also wrote *Studies in Diplomacy*. See FRANCO-GERMAN WAR.

BENEDICITE, *bĕn-ĕ-dĭs'ĭ-tĕ*: ancient hymn or song; a Hebrew canticle said to have been composed with reference to the three children in the fiery furnace, Dan. iii. 8–30, sung in the Christian Church as early as the time of St.

BENEDICT.

(Chrysostom, and used in the Anglican Church in the morning services when the *Te Deum* is not sung. It is named from its first word in the Latin: in Eng. it begins 'O all ye Works of the Lord! bless ye the Lord!')

BENEDICT, n. *běn'ě-dīkt*, also spelled BEN'EDICK [one of Shakespeare's characters in *Much Ado about Nothing*, who begins as a confirmed bachelor and ends by marrying Beatrice]: a late, unwilling, or unexpected convert to matrimony; sometimes applied to a bachelor.

BENEDICT: name of fourteen popes. Of these the following are historically important:

BENEDICT VI. (pope 972-974), installed under protection of Emperor Otho the Great. When the emperor died, the turbulent citizens of Rome renewed their outrages of a few years previous, and the pope was strangled 974, by order of Crescentius, son of the notorious Empress Theodora. This pope was succeeded by Benedict VII. (pope 975-983), who had a peaceful reign.

BENEDICT VIII., son of Count Gregory of Tuscoli, was elected in 1012; but was driven from Rome by the anti-pope Gregory. In 1014, he was restored to the papal chair by Emperor Henry II., and afterwards defeated the Saracens, and took from them, with the help of the Pisans and Genoese, the island of Sardinia, also various places in Apulia from the Greeks, by the help of Henry. He distinguished himself as a reformer of the clergy, and interdicted, at the synod of Pavia, both clerical marriage and concubinage. He died 1024.

BENEDICT IX., nephew of the preceding, was elected pope at the age of 18, in 1033; but in 1038, the Romans rose in indignation, and banished him on account of his almost unexampled licentiousness. He was reinstalled by Conrad II.; again formally deposed by the Consul Ptolemæus, who set up Sylvester III. in his place; and after three months, was once more installed as pope by means of bribery. By a new simoniacal compact, John Gratianus was declared pope under the name of Gregory VI. The emperor Henry III., to remove such gross scandals from the church, deposed all the three popes—B., Sylvester, and Gregory, and caused Suidger, Bishop of Bamberg, to be elected as Clement II.; but on his death, 1047, the deposed B. IX. again corruptly regained the papal see, and held it eight months, until 1049, when he was displaced, first by Damasus II., afterwards by Leo IX. He died in the convent of Grotta Ferrata, 1056.

BENEDICT XIII. (pope 1724-30) was a learned and well-disposed man, of simple habits and pure morals, though rather strict in his notions of the papal prerogative. He unfortunately yielded himself to the guidance of Cardinal Coscia, a greedy, unscrupulous personage, who greatly abused the confidence reposed in him. B. always showed moderation in politics, and an honorable love of peace, and was instrumental in bringing about the Seville treaty of 1729. During this pontificate, a remarkably large number of saints, chiefly from the monastic orders, were added to the calendar.

BENEDICT XIV. (PROSPERO LAMBERTINI), most worthy

BENEDICT

to be remembered of all the pontiffs so named, was b. Bologna, 1675. Before his elevation, he had distinguished himself by extensive learning, and by ability in the several offices of *Promotor Fidei*, Bp. of Ancona (1727), cardinal (1728), and Abp. of Bologna (1732). Succeeding Clement XII., he began his pontificate, 1740, with several wise and conciliatory measures; founded chairs of physic, chemistry, and mathematics in Rome; revived the acad. of Bologna, and instituted others; dug out the obelisk in the Campus Martius, constructed fountains, rebuilt churches; caused the best English and French books to be translated into Italian, and in many other ways encouraged literature and science. His piety was sincere, enlightened, and tolerant, and his doctrines were well exemplified in his practice. He was extremely anxious that the morals of the clergy should be untainted; and, to that effect, established a board of examiners for all candidates to vacant sees. In proof of his toleration, he showed the frankest kindness to all strangers visiting his capital, whatever the nature of their religious opinions. The only accusation brought against him by his Roman subjects was, 'that he wrote and studied too much, but ruled too little,' or left affairs of business too much in the hands of the Cardinal Valentine. After a painful illness, B. XIV. died 1758, May 3.—His most important works are that *On the Diocesan Synod*; *On the Sacrifice of the Mass*; and *On the Beatification and Canonization of Saints*. A complete edition of his writings was published under the care of the Jesuit de Azevedo (12 vols., 1747–51), and in 16 vols. (1777).

BENEDICT, Sir JULIUS: 1804, Dec. 24—1885, June 5: b. Stuttgart: musician and composer, German by birth, but, after 1836, resident in England. He studied first under Hummel at Weimar, and afterwards under Weber at Dresden. On Weber's recommendation, he was, 1824, made music director of the Kärnthner Thor Theatre, Vienna; and afterwards filled the same post at Naples. While in Naples, he produced an opera buffa called *Giacinta ed Ernesto*, and an opera seria, *I Portoghesi a Goa*. In Paris, and afterwards (1835) in London, he appeared with great success as a pianist. In 1836, he took up his permanent residence in London, and was, during that year, director of the opera buffa at the Lyceum, where he produced an operetta of his own, composed in Naples, *Un Anno ed un Giorno*. Turning his attention afterwards to English opera, he composed *The Gypsy's Warning* (1838), *The Brides of Venice* (1844), and *The Crusaders* (1846), three works which, translated into German, have been well received in the composer's native country. He conducted the opera in Covent Garden Theatre, 1843,4, and the Norwich Musical Festival, 1845, and has since conducted much at concerts and great musical gatherings in London and in the provinces. In 1850, he conducted at Jenny Lind's concerts in America. In 1860, he produced a cantata, *Undine*, at the Norwich Musical Festival, which was very well received. His *Lily of El larney*, first given, 1862, at Covent Garden, was his greatest

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operatic success. He produced a cantata, *Richard Cœur de Lion* (1863); an opera di camera, *The Bride of Song* (1864); and the cantatas *St. Cecilia* (1866) and *Graziella* (1882). His operas have much dramatic and melodic beauty, and in style and feeling are singularly English, to be the composition of a foreigner. His oratorio, *St. Peter*, written for the Birmingham Musical Festival, 1870, had extraordinary success. His first symphony was received with great favor, 1873. In 1878 he was for the twelfth time conductor of the Norwich Festival. He was knighted, 1871.

BENEDICT, *běn'è-díkt*, SAINT: 480-543, Mar. 21: b. Nursia, in Umbria, Italy: founder of monachism in the west. His family was rich, and at an early age B. was sent to the schools of literature and jurisprudence at Rome, but soon grew dissatisfied with the sterile instruction dispensed. The world was full of distractions, impurities, and ignorance; and it was difficult to resist by the ordinary safeguards of virtue the colossal evils by which men were environed; only, therefore, in the devotions of religion, in the holy silence of solitary meditation, did B. see a safe refuge from the sins of the time, and the possibility of realizing a spiritual strength which would enable him to stem the tide of corruption that was setting in. He resolved to leave the city, and betake himself to some deep solitude in which the murmur of the world would be inaudible, and alone in the rocky wilderness wrestle with his own nature, until he had conquered it and laid it a sacrifice on the altar of God. In pursuance of this resolution, when he had reached, according to some, the age of only 14, he departed from Rome, accompanied for the first 24 miles by the nurse whom his parents had sent with him as an attendant to the city. B. then left her, and retired to a deserted country lying on a lake, hence called *Sublacum* (now Subiaco). Here, in a cavern (which afterwards received the name of the Holy Grotto), he dwelt three years, until his fame spread over the country, and multitudes came to see him. He was now appointed abbot of a neighboring monastery; but soon left it, as the morals of the half-wild monks were not severe enough for his taste. This, however, only excited a livelier interest in his character, and as he lived in a period of rapid migration and interfusion of races and nations, he could not fail to draw crowds of wanderers about him. Wealthy Romans also placed their sons under his care, anxious that they should be trained for a spiritual life. B. was thus enabled to found twelve cloisters, over each of which he placed a superior. The savage *Goths* even were attracted to him, and employed in the useful and civilizing practice of agriculture, gardening, etc. He now sought another retreat, and, with a few followers, founded a monastery on Monte Cassino, near Naples, afterwards one of the richest and most famous in Italy. Here he extirpated the lingering relics of paganism, and had his celebrated interview with Totila, King of the Goths, to whom he spoke frankly and sharply on his errors. In 515, he is said to have composed his *Regula Monachorum*, in which he aimed, among

other things, at repressing the irregular and licentious life of the wandering monks, by introducing stricter discipline and order. It eventually became the common rule of all western monachism. The monasteries which B. founded were simply religious colleges, intended to develop a high spiritual character, which might beneficially influence the world. To the abbot was given supreme power, and he was told to acquit himself in all his relations with the wisdom of God, and of his Master. The discipline recommended by St. B. is, nevertheless, milder than that of oriental monachism with regard to food, clothing, etc.; but enjoins continual residence in the monastery, and, in addition to the usual religious exercises, directs that the monks shall employ themselves in manual labors, imparting instruction to youth, copying manuscripts for the library, etc. By this last injunction, St. B., though this was not directly intended, preserved many of the literary remains of antiquity; for the injunction, which he gave only with regard to religious books, was extended afterwards to many secular productions. It is remarkable that the founder of the most learned of all the monastic orders was himself so little of a scholar, that St. Gregory the Great described him as being '*scienter nesciens, et sapienter indoctus*'—learnedly ignorant, and wisely unlearned. See BENEDICTINES.

BENEDICT BISCOP: English ecclesiastic; abt. 629-690, Jan. 12. He exercised an important influence on Anglo-Saxon civilization and learning. He was of a noble Northumbrian family (his patronymic, according to Eddius, being Baducing), and until about his 25th year, was a courtier of Oswin, King of Northumberland. About that time, he gave up his court-life, and accompanied Wilfred to Rome (654), where he spent about ten years in study, and from which he seems to have returned soon after the synod of Whitby, 664. In 665 he was in Rome a second time, being sent on a mission by Alchfrid, King of Northumbria. After a stay at Rome of a few months, he went to Lerins, in Provence, where he became a monk, received the tonsure, and spent about two years, thus acquiring a knowledge of monastic discipline. He returned to Rome, 668, came to England with Theodore and Adrian, and was made abbot of the monastery of St. Peter (afterwards that of St. Augustine) in Canterbury. This he resigned two years afterwards, and went to Rome for a fourth time for the purpose of bringing home the literary treasures which he had already collected. He returned about 673, bringing with him a large collection of valuable books, and repaired to Northumbria, where King Ecgfrid gave him land near the mouth of the Wear, on which he founded the famous monastery of Wearmouth. Workmen were brought from France to build and glaze the church and monastery, this being one of the earliest instances of the use of glass for windows in England. He also introduced from Gaul and Rome (which he visited again, 678) church utensils and vestments, relics, pictures, images, and again a vast number of books. He brought with him John, archchanter of St. Peter's, who introduced

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the Roman choral service. On his return from this visit to Rome, King Ecgfrid presented him with more land on the other side of the Wear, at a place called Girwi, on which he built a second monastery, dependent on Wearmouth. B. made his sixth and last journey to Rome, 685, and, as on former occasions, came home loaded with books and pictures, bringing with him also, according to Bede, two silk palli 'of incomparable workmanship.' Shortly after his return from Rome, abt. 687, he was seized with palsy, under which after languishing three years he died. During his long illness, he often anxiously exhorted his monks to look carefully after his books, and preserve them from loss or injury.

The benefits conferred by B. on Anglo-Saxon civilization, then only in its dawn, and the impulse given by his labors to Anglo-Saxon learning, were greater than can now be estimated. It is not certain that he wrote any books, and those ascribed to him are of little value; but by his personal teaching, and especially by his founding at Wearmouth such a valuable and, for the time, extensive library, he implanted in the nation a taste for literature and learning, which soon was fruitful in results, and continued so for many centuries. Bede, who was his pupil, has written a life of B., and the numerous works of this 'venerable' author are the best proof of the extent and variety of information to which he had access in the monastery of Wearmouth.—See Wright's *Biographia Britannica Literaria*.

BENEDICTINES, n. plu., *bën'ê-dik'tîns*: general name of all the monks following the rule of St. Benedict of Nursia (see **BENEDICT**, ST.). The first Benedictine monastery was founded at Monte Cassino, in the kingdom of Naples, about 529, by St. Benedict himself. The order increased so rapidly after the 6th c., that the B. must be regarded as the main agents in the spread of Christianity, civilization, and learning in the west. They are said at one time to have had as many as 37,000 monasteries, and counted among their branches the great order of Clugny, founded about 910, the still greater order of the Cistercians, founded in the following century; the congregations of Monte Cassino, 1408, of St. Vanne, 1600, and of St. Maur on the Loire, 1627. To this last congregation all the Benedictine houses in France were affiliated. It had afterwards its chief seat at St. Maur, near Vincennes, and more lately at St. Germain-des-Près, near Paris. Its fine conventual buildings at St. Maur on the Loire were destroyed during the revolutionary troubles. Numbering among its monks such scholars as Mabillon, Montfaucon, Sainte-Marthe, D'Achery, Martene, Durand, Rivet, Clemencet, Carpentier, Toustain, Constant, and Tassin, it has rendered services to literature which it would be difficult to over-estimate. Besides admirable editions of many of the fathers, the world of letters owes to the B. of St. Maur the *Art de Verifier les Dates* (1733-87, 3 vols. fol.) a much enlarged edition of Du Rango's *Glossarium Medus et Infusæ Latinitatis* (1733-36, 6 vols. fol.), with a supplement (1766, 4 vols. fol.); the *De*

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Re Diplomatica (1681 and 1709, fol.); the *Nouveau Traité de Diplomatique* (1750-65, 6 vols. 4to); *L'Antiquité Expliquée* (1719-24, 15 vols. fol.); the *Monuments de la Monarchie Française* (1729-33, 5 vols. fol.); the *Acta Sanctorum S. Benedicti* (1688-1702, 9 vols. fol.); the *Annales Ordinis S. Benedicti* (1713-39, 6 vols. fol.); a new and much improved edition of the *Gallia Christiana* (1715-1856, 14 vols. fol.); the *Veterum Scriptorum Spicilegium* (1653-77, 13 vols. 4to); the *De Antiquis Monachorum Ritibus* (1690, 2 vols. 4to); the *De Antiquis Ecclesiæ Ritibus* (1700-02, 3 vols. 4to); the *Thesaurus Novus Anecdotorum* (1717, 5 vols. fol.); the *Veterum Scriptorum et Monumentorum Amplissima Collectio* (1724-33, 9 vols. fol.); the *Histoire Littéraire de la France* (1733-49, 9 vols. 4to). The B. were suppressed in France, with the other monastic orders, at the Revolution in 1792; and their splendid conventual buildings at St. Maur on the Loire were destroyed. They have lately been revived; and the B. of Solesmes, established 1837, have resumed under the direction of Dom Gueranger, Dom (later Card.) Pitra, and others, some of the works which the B. of St. Maur left unfinished, and entered on literary enterprises of their own, such as the *Spicilegium Solesmense*, 10 vols. 4to, of which four have already appeared. The chief B. houses in Germany were those of Prüm, Ratisbon, Fulda, Ellwangen, and Salzburg; in Spain, they had Valladolid, Burgos, and Montserrat; in Italy, Monte Cassino, Rome, Padua, and Capua. In England, most of the richest abbeys and all the cathedral priories (excepting Carlisle) belonged to this order. In Scotland the B. had the monasteries of Dunfermline, Coldingham, Kelso, Arbroath, Paisley, Melrose, Newbottle, Dundrennan, and others. In Germany, several Benedictine monks distinguished themselves as promoters of education in the 10th c.; while in the latter half of the 11th c., the B. Lanfranc and Anselm, archbishops of Canterbury, laid the foundation of mediæval scholasticism. In Italy, also, the B. gained distinction as literati, jurists, and physicians: but almost everywhere corruption of manners appears to have accompanied their increasing wealth, until gradually it became the practice to receive, almost exclusively, the sons of noble and wealthy persons as novices among the 'Black Monks.' Several of the popes attempted a reformation of the order, and at the general Council of Constance, 1416, a plan of reform was laid down, but failed in practice. In the 15th c., the B. had 15,107 monasteries, of which only 5,000 were left after the Revolution, and now not more than about 800 can be counted. As early as 1354, this order could boast of having numbered among its followers 24 popes, 200 cardinals, 7,000 archbishops, 15,000 bishops, 1,560 canonized saints, and 5,000 holy persons judged worthy of canonization, and 37,000 monasteries, besides 20 emperors, 10 empresses, 47 kings, above 50 queens, 20 sons of emperors, 48 sons of kings, 100 princesses, and an immense number of the nobility. Tanner (*Notit. Monast.*) enumerates 113 abbeys and other institutions of B. in England, and 73 houses of Benedictine nuns. From their dress—a long black gown, with a cowl or hood

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of the same, and a scapulary—the B. were commonly styled ‘Black Monks.’ The institution of convents for nuns of this order cannot be traced back beyond the 7th century.

The rule of St. Benedict was less severe than that which the eastern ascetics followed. Besides implicit obedience to their superior, the B. were to shun laughter, to hold no private property, to live sparsely, to exercise hospitality, and, above all, to be industrious. Compared with the ascetic orders, the B., both in dress and manners, may be styled the gentlemanly order of monks; and whatever may be said of their religion, they deserve a high tribute of respect for their artistic diligence and literary undertakings. Speaking of the great productions of the B. above noticed, Sir Walter Scott characterizes them as ‘works of general and permanent advantage to the world at large; showing that the revenues of the B. were not always spent in self-indulgence, and that the members of that order did not uniformly slumber in sloth and indolence.’ Among the chief works on the history of the B. are the *Annales Ordinis S. Benedicti*, and the *Acta Sanctorum S. Benedicti*, already referred to; Reyner’s *Apostolatus Benedictinorum in Anglia* (Douai, 1626, fol.); the *Bullarium Cassinense* (Venice, 1650, 2 vols. fol.); Tassin’s *Histoire de la Congrégation de Saint Maur* (Paris, 1770); *Chronica de la Orden de San Benito* (Salamanca, 1609–15, 7 vols. fol.); *Regula S. Benedicti et Constitutiones Congregationis S. Mauri* (Paris, 1770, 8vo); Montalembert’s *Moines de l’Occident*.

BENEDICTION, n. *běn' -dīk'shŭn* [F. *bénédiction*—from L. *benēdictiōnem*—from L. *bēnē*, well; *dictus*, said, spoken]: a blessing pronounced; kind wishes for success. **BENEDICTORY**, a. *běn'ē-dīk'tēr ī*, expressing wishes for good. **BENEDICTIVE**, containing, expressing, or imparting a blessing. **BENEDICTUS**, n. [L. *blessed*]: the name given to the hymn of Zacharias (Luke i. 68), a portion of the mass service in the Church of Rome commencing *Benedictus qui venit*, following the Sanctus.

BENEDICTION: solemn invocation of the divine blessing upon men or things. The ceremony in its simplest form may be considered almost coeval with the earliest expressions of religious feeling. We know from Holy Writ that the Jewish patriarchs before they died invoked the blessing of God upon their children, and at a later period the priests were commanded to implore the divine blessing upon the people. Christ sanctioned the custom, which was consequently carried forward into the primitive church, where it gradually developed itself in various forms. In the eastern as well as the western church, it is considered an essential preliminary to almost all important acts. One of the most superb spectacles that a stranger at Rome can witness occurs on Easter Sunday, when the pope, attended by his cardinals, pronounces after mass a solemn B. *urbi et orbi* (on the city and the world). The B., however, is not confined to a form of prayer, but is accompanied with sprinkling of holy water, use of incense, making the sign of the cross, etc. The chief cases in which a B. is bestowed are—the coronation of kings and queens, the confirmation of all church digni-

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taries, and the consecration of church vessels, bells, and sacred robes; the nuptial ceremony, the absolution, and the last sacrament. The most solemn form of B. in the Roman Church is that 'with the Most Holy Sacrament,' which is administered by the bishop or priest with the monstrance or ostensory containing the consecrated elements. Besides these, lands, houses, cattle, etc., often receive a B. from the priest. B. pronounced by the minister is usually the last utterance in Christian assemblies. In the Greek Church, when the B. is being pronounced, the priest disposes his fingers in such a manner as to convey symbolically to the faithful who are close enough to observe the arrangement, the doctrine of the Trinity and the twofold nature of Christ.

BENEDICTUS, *běn-ě-dĭk'tus*: a portion of the service of the mass of the Roman Church: also the so-called 'canticle of Zachary' (Luke i. 68-79), used in the Roman service of matin lauds, and thence adopted into the Anglican morning service. It begins, 'Blessed be the Lord God of Israel.'

BENEFACTION, n. *běn'ě-făk'shŭn* [L. *benefactiōnem*, a benefaction—from *běně*, well; *factus*, done]: the doing good to another; a benefit or good conferred; a charitable donation. **BEN'EFAC'TOR**, n. *-tēr*, one who bestows a benefit or good. **BEN'EFAC'TRESS**, n. a woman who confers a benefit.

BENEFICE, n. *běn'ě-fĭs* [F. *bénéfice*, a benefit—from L. *beneficĭum*, a favor—from L. *běně*, well; *faciō*, I make or do]: an estate granted through favor or kindness; a church-living or preferment. **BENEFICED**, a. *běn'ě-fĭst*, possessed of a church-living. **BENEFICENCE**, n. *bě-něfĭ-sěns*, active goodness; the practice of doing kindness to those in need. **BENEF'ICENT**, a. *-sěnt*, kind; charitable. **BENEF'ICENTLY**, ad. *-lĭ*. **BENEFICIAL**, a. *běn'ě-fĭsh'ăl*, useful; profitable; helpful. **BEN'EFICI'ALLY**, ad. *-lĭ*. **BENEFICIARY**, n. *běn'ě-fĭsh'ĭ-ěr-ĭ*, one who receives anything as a gift; one who holds a benefice: also, see **TRUST**. **BENEFIT**, n. *běn'ě-fĭt* [OF. *bienfit*; F. *bienfait*—from L. *benefac'tum*, a kindness conferred]: anything tending to the good of another; a favor; profit: V. to do good to; to gain advantage from. **BEN'EFITING**, imp. **BEN'EFITED**, pp. *-fĭt-ěd*. **BENEFIT OF CLERGY**, a privilege once enjoyed by persons in *holy orders*, as well by all who could read, of being exempted from the punishment of death, and only burnt in the hand if convicted of certain crimes.—**SYN.** of 'beneficial': useful; profitable; advantageous; helpful; medicinal;—of 'beneficent': bountiful; bounteous; munificent; generous; liberal; benevolent;—of 'benefit, n.': profit; advantage; use; avail; service, favor; kindness; civility.

BENEFICE, *běn'ě-fĭs*, or **BENEFICIUM**, *běn'ě-fĭ'shĭ-um*: in especial, a provision made for an ecclesiastical person. Formerly applied to feudal estates, it is now used to denote certain kinds of church preferment in the Church of England, such as rectories, vicarages, and other parochial cures, as distinguished from bishoprics, deaneries, and other ec-

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clesiastical dignities or offices. In this sense a distinction is taken between *benefices* and *cathedral preferments*; by the former being meant all parochial or district churches, and endowed chapels and chapelries; by the latter, all deaneries, archdeaconries, and canonries, and generally all dignities and offices in any cathedral or collegiate church, below the rank of a bishop. See note in 3 Stephen's *Com.* p. 27. By laws comparatively recent the term B. is explained to mean *B. with the cure of souls and no other*, anything in any other act to the contrary notwithstanding. Benefices are also *exempt* or *peculiar*, by which is meant that they are not to be under the ordinary control and administration of the bishop; but it is now provided that such exempt or peculiar benefices shall nevertheless, and so far as relates to pluralities and residence, be subject to the abp. or bp. within whose province or diocese they are locally situated.

There are, in general, four requisites to the holding of a benefice. 1st, Holy orders, or ordination at the hands of a bishop of the established church or other canonical bishop (a Rom. Cath. priest may hold a benefice in the Church of England on abjuring the tenets of his church, without being re-ordained); 2d, Presentation, or the formal gift or grant of the B. by the lay or ecclesiastical patron; 3d, Institution at the hands of the bishop, by which the cure of souls is committed to the clergyman; and 4th, Induction, which is performed by a mandate from the bishop to the archdeacon to give the clergyman possession of the temporalities. Where the bishop is himself also patron, the presentation and institution are one and the same act, and called the *collation* to the benefice. See ESTATE: LIVING: PARISH: PLURALISM.

BENEFIT BUILDING SOCIETIES: societies for the purpose of raising, by periodical subscriptions, a fund to assist members in obtaining heritable property, freehold or otherwise. In the United Kingdom, they were formerly regulated by an act passed 1836; but a new act was adopted by parliament 1874 and amended 1876 and 7. Under this act, two great divisions of building societies exist, the terminating and the permanent; but the latter are rapidly superseding the former. In the best-conducted societies, subscriptions are received at any time and to any amount, at the option of the member. The majority of members pay 10 to 20 shillings (about \$2.50 to \$5.00) per month, and others pay smaller or much larger sums as convenient. Very large sums are received in some societies. The National Permanent of London receives £783,000 in the financial year from 11,395 members, and the Bradford Third Equitable receives £596,000 from 8,148 members. Other large towns in the provinces are not far behind, and in London the societies are numerous, and in the main prosperous. The Royal Commissioners, in 1872, assumed that building societies had a subscribed capital of more than £9,000,000, a loan or deposit capital of more than £6,000,000, more than £17,000,000 total assets (of which £16,000,000 was advanced on mortgage), and an income of

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more than £11,000,000. In 1885 the number of societies in England and Wales was 2,044, with subscribed capital £32,235,452, loan or deposit capital of £15,655,162, assets £49,472,827, total receipts in that year £21,093,977. These figures are below the mark, as 200 societies made no return. The total membership is probably more than 600,000. In Scotland there were 50 incorporated societies on the register, with subscribed capital £696,803, loan capital £278,120, assets about £1,000,000, 153 unincorporated societies. The largest Scottish societies are the Paisley Heritable and the Bon Accord of Aberdeen. In Ireland are 40 societies, with subscribed capital £672,585, loan capital £416,065, assets £1,108,000. Much the largest of these is the Irish Civil Service of Dublin, annual receipts £330,801. For B. B. S. in the United States, see BUILDING AND LOAN ASSOCIATIONS.

BENEFIT OF CLERGY: privilege formerly pertaining to persons in holy orders—indeed to all who could read, who then were deemed educated—of being exempt from the punishment of death at the hands of the secular magistrate. Practically it amounted almost to exemption from any penalty of the civil law. A priest could be held in custody by the king himself; but even in that case, he could be kept in such regal custody only with the pleasure and consent of the bishop, who had entire control over his person, and over the inquiry into his offense. If a priest or ‘clerk’ happened to be imprisoned by the secular arm, on a criminal charge or capital felony, he was, on the bishop’s demand, to be instantly delivered up without any further inquisition; not, indeed, to be let loose upon the country, but to be detained by the bishop, till he had either purged himself from the offense, or, having failed to do so, had been degraded and so made amenable to the secular law; and this state of things continued till the reign of Henry VI., when it was settled that the prisoner should first be arraigned, and might either then claim his Benefit of Clergy by plea declining the jurisdiction, or, as was most usually practiced, after conviction, by way of arresting judgment. The test of admission to this singular privilege was the clerical dress and tonsure; and a story is told of one William de Bussy, a serjeant-at-law, 1259 (the practicing lawyers then were all priests), who, being called to account for his great knavery and malpractices, claimed the benefit of his orders or clergy, which till then had remained an entire secret, and to this end wished to untie his coif, that he might show that he had the clerical tonsure; but this was not permitted, and the bystanders seizing him, not by the coif, but by the throat, dragged him to prison. See 1 Stephen, p. 17. But in course of time a much more comprehensive criterion was established, all who could *read*, whether of the clergy or laity—a mark of great learning in those days—and who were therefore capable of becoming clerks, being allowed the privilege. But laymen could claim it only *once*, and upon so doing, were burned on the hand, and discharged; to be again tried, however,

by the bishop, whose investigation resulted usually in an acquittal, which, although the offender had been previously convicted by his country, or perhaps by his own confession, had the effect of restoring him to his liberty, his credit, and his property—in fact, the episcopal acquittal so entirely whitewashed him, that in the eye of the law he became a new and innocent person. The mode in which the test of reading was applied was as follows. On conviction, the felon demanded his clergy, whereupon a book (commonly a psalter) was put into his hand, which he was required to read, when the judge demanded of the bishop's commissary, who was present, *Legit ut clericus?* and upon the answer to this question depended the convict's fate: if it were simply *legit*, the prisoner was burned on the hand, and discharged; but if *non legit*, he suffered the punishment due to his offense. But in the reign of Anne the Benefit of Clergy was extended to all persons convicted of clergyable offenses, whether they could read or not; and by the same statute and several subsequent ones, instead of burning on the hand, a discretionary power was given to the judge to inflict a pecuniary fine or imprisonment. But all further attempts to modify and improve the law on this subject proving impracticable, the Benefit of Clergy was at last totally abolished, in the reign of George IV (see 7 and 8 Geo. IV. c. 28); and now by the 4 and 5 Viet. c. 22, the same is the law with regard to the peers. See Kerr's *Blackstone*, vol. iv., p. 452; Hale's *Pleas of the Crown*, part 2. c. 45; and Reeves's *History of the English Law*. This privilege had never any existence in Scotland.

BENEFIT SOCIETIES: name in Great Britain for associations for mutual benefit, chiefly among the laboring classes: better known as **FRIENDLY SOCIETIES** (q.v.).—See also **BUILDING AND LOAN ASSOCIATIONS**.

BENEKE, *bū'nè-kè*, FRIEDRICH EDUARD: 1798–1854, Mar.; b. Berlin: prof. of philosophy in Berlin. He studied theology and philosophy, first at Halle, then at Berlin; and 1820, he began lecturing in the latter university, but his lectures were soon interdicted by the minister Altenstein, as his philosophical views were quite opposed to those of Hegel. After a few years his lectures were again allowed, and on Hegel's death, 1832, he was appointed extraordinary prof. of philosophy. In 1854, March, B. disappeared suddenly from his residence, and nothing more was heard of him until 1856, June, when his body was found in the canal at Charlottenburg, where he had sought his death. B. has more affinity with British thinkers than any other German philosopher. He holds that the only possible foundation for philosophy lies in a strict adherence to the facts of our consciousness. His system of psychology is therefore what the Germans call 'empirical,' and his method is the Baconian as pursued in natural science. Of his numerous writings may be mentioned *Psychologische Skizzen* (2 vols. 1825–27); *Lehrbuch der Psychologie als Naturwissenschaft* (Text-book of Psychology as a Natural Science, 2d ed. 1845); *System der Logik* (2

vols 1842); *Erziehungs-und-Unterrichtslehre* (A Treatise on Education, 1842). There are eminent German educationists who recommend B.'s psychology as more capable of practical application than the prevailing systems of Germany.

BENEMPNE, or BYNEMPNE, v. *bĭ-nĕm'nĕ* [AS. *be, nemnan*, to name, to call upon: OE. *nempne*, to name]: in OE., to name; to promise. BYNEMPT, pp. *bĭ-nĕmt'*, pronounced; promised.

BENET, v. *bĕ-nĕt'* [*be*, and *net*, which see]: in OE., to surround with toils; to ensnare.

BENEVENTO, *bĕn-ā-vĕn'tō* (ancient *Beneventum*): city of s. Italy, cap. of the province of B. It occupies the site of the ancient city, out of the materials of which it is entirely built, on the declivity of a hill, near the confluence of the Calore and Sabato, about 32 m. n.e. of the city of Naples. B. is about two m. in circumference, is surrounded by walls, has a citadel, a fine old cathedral, some noteworthy churches, and a magnificent arch, erected to the honor of the Emperor Trajan, by the senate, 114, which, with the single exception of that of Ancona, is the best preserved specimen of Roman architecture in Italy. It is an archiepiscopal see, and has a population of (1881) 17,406. B. is a place of very great antiquity. Some writers attribute its origin to Diomed, and in the cathedral is a bas-relief representing the Calydonian boar adorned for sacrifice, said to be the gift of the Greek hero himself. Other old writers give the credit of its origin to Auson, a son of Ulysses and Circe. It was, however, in the possession of the Samnites, when history first takes notice of it, and it appears to have been captured from them by the Romans, some time during the third Samnite war. In B.C. 275, a battle occurred between Pyrrhus, King of Epirus, and the Romans under Curius Dentatus, the consul. The combat was commenced and contested with the same ardor and obstinacy on both sides. At length, when the consul seemed to be getting the advantage over his enemy, Pyrrhus let loose his elephants against the Romans, who were already fatigued by the combat. It was by means of these monsters that the Romans had been defeated in former engagements, and they again recoiled until they reached their reserves, which the consul had prudently stationed on an elevation in the rear. There they found time to rally and renew the battle in an advantageous position. Having perceived that the sword and arrows frightened the elephants far less than fire, the Romans now began to throw projectiles loaded with combustibles and accompanied by flaming cords of pitched tow. The elephants were soon so terrified that they turned back maddened and furious, and trampled down the Greeks instead of the Romans. Pyrrhus tried in vain to recall his soldiers to duty. Repulsed by the Romans, and crushed by their own elephants, they were totally routed. About 26,000 men remained upon the battlefield of B., and 13,000 were made prisoners. Pyrrhus himself made a narrow escape with a few of his horsemen. The Romans entered the camp of the enemy, examined

it, and there learned how to encamp a whole army in one circle of intrenchments. B. was certainly in the hands of the Romans B.C. 274, who changed its name from Maleventum to Beneventum, six years later, and made it a Roman colony. The Carthaginians, under Hanno, were twice decisively defeated in the immediate neighborhood, during the second Punic war. It rapidly rose to a place of importance under the Roman empire, and was visited at various times by several of the emperors.

Under the Lombards, who conquered it in the 6th c., B. continued to flourish, and became the capital of a duchy which included nearly the half of the late kingdom of Naples. In the 9th c. the duchy was separated into three states—B., Salerno, and Capua. In 1077, the whole was taken possession of by the Normans, excepting the town and its present delegation, which had previously (1053) been presented to the pope by the emperor Henry III.

In 1266 a battle took place here between Charles of Anjou, who favored the pope, and the partisans of the house of Swabia, commanded by Manfred. This became the subject of Guerrazzi's historical romance, *La Battaglia di Benevento* (1828).

During the 11th and 12th c., four councils were held at B. Thenceforward, until 1860, when it was united with the kingdom of Italy, B. remained, with slight intervals, governed through a resident cardinal with the title of legate. In 1806, it was made a principality by Napoleon, with Talleyrand as Prince of B.; but it was restored to the pope 1815. In 1848–9, B. was faithful to the pope. Pop. (1891) 22,900; (1901) 24,650.

The province of B. has 834 sq. m.; pop. (1901) 257,101.

BENEVOLENCE, n. *bě-něv'ō-lěns* [OF. *bénévolence*—from L. *benevōlēs* 'tūā, goodwill—from L. *bēnē*, well; *vōlō*, I wish]: good-will; the disposition to do good; good done; a compulsory tax or assessment, formerly imposed on the people by the kings of England. **BENEVOLENT**, a. kind; possessing the desire to do good. **BENEVOLENTLY**, ad. -*lī*. —**SYN.** of 'benevolence': beneficence; benignity; humanity; kindness; tenderness; munificence.

BENEVOLENCE, in the history of the law of England: a species of forced loan, arbitrarily levied by the kings in violation of Magna Charta, and in consequence of which it was made an article in the Petition of Rights, 3 Car. I., that no man shall be compelled to yield any gift, loan, or B., tax, or such like charge, without common consent by act of parliament; and by the statute 1 Will. and Mary, st. 2, c. 2, it is declared that levying money for or to the use of the crown, by pretense of prerogative, without grant of parliament, or for longer time or in other manner than the same is or shall be so granted, is illegal. See Hallam's *Constitutional History of England*, and 1 Stephen's *Com.*, p. 167.

BENG, n. *běng*, also spelled **BANG** or **BANGUE**, but properly **BHANG**, n. *bāng* [Pers. *bang*, an intoxicating draught; Sks. *bhangga*, hemp, the drug from it]: the prepared leaf of the Indian hemp, used as a narcotic.

BENGAL.

BENGAL, n. *běn'gawl*, a thin stuff made of silk and hair, so called from Bengal, in India, where first made. BENGAL LIGHT, a firework used for signals, or in illuminations. BENGAL-STRIPES, a Bengalese striped cotton cloth. BENGALEE, n. *běn'gâ-lě'*, the language of Bengal. BENGALESE, n. sing. or plu. *běn'gâ-lěz'*, a native of Bengal.

BENGAL, *běn-gawl'*: term formerly denoting a 'presidency' of British India, now ordinarily denoting the administrative province so called. In 1765, the soubah or viceroyalty of this name was, with Bahar and part of Orissa, ceded by the Great Mogul, virtually in full sovereignty, to the English East India Company. As a natural consequence of this acquisition of territory, the presidency of Calcutta, which had been separated from that of Madras in 1707, came to be styled the presidency of Bengal. Moreover, in 1773, this, the youngest of the three distinct governments of British India, was elevated above both its older rivals by an act of parliament, which declared its immediate ruler to be *ex officio* the gov.gen. of the whole of the company's dominions. With its commanding position on and around the delta of the Ganges and the Brahmaputra, B., as a presidency, grew almost uninterruptedly alike to the n.w. and to the s.e.—far beyond the basins of its own mighty rivers. Within less than 90 years, it had overleaped, without a break in its continuity, at once the Irrawaddy and the Indus. Benares, in the one direction, was the first considerable increment, having been absorbed 1775; while the last addition of importance—unless Oude be excepted, which, however, had really become British in 1801—was Pegu, in the other direction, the Burmese war of 1852 filling up the gap on the coast which that of 1826 had still left between Assam and Aracan on the n., and Tenasserim on the s. From Tenasserim to the Punjab inclusive, B., as a presidency, embraced about 29° of long., and about 21° of lat. Further, it comprised, to the s.e. the detached settlements of Penang, Malacca, and Singapore; while to the n.w. it might, for a time at least, have claimed Afghanistan. The whole of this vast tract was, either directly or indirectly, under the immediate rule of the gov.gen., advised, and in some cases controlled, by a council of five members, of whom one was the commander-in-chief, and at least one other was not to be a company's servant.

Some time ago, the presidency of B., having proved too extensive for a consolidated administration, was divided into three portions—one portion remaining under the gov.gen., and two being assigned to subordinate functionaries, the lieut.govs. respectively of 'The Northwestern Provinces,' and of 'Bengal.' The first portion, under the direct sway of the gov.gen., consisted of the Punjab (q.v.); the Cis-Sutlej states, four in number—Oude, Nagpoor, Pegu, Tenasserim; and the three detached settlements already mentioned in and near the Straits of Malacca. The two other portions, occupying, between them, the entire space from Pegu to the Cis-Sutlej states, met near the confluence of

BENGAL.

Gogra and the Ganges, Patna being in 'Bengal,' and Benares in 'The Northwestern Provinces.' The 'presidency' of B. is no longer an administrative division; the territory over which the lieut.gov. of B. now rules is very nearly what used to be known as Lower B., and comprises B. Proper, Bahar, Orissa, including the tributary Mehals, Chota Nagpore, and the native states of Hill Tipperah and Kooch Bahar. The Northwest Provinces are no longer included in the government of B.; the Punjab has likewise an independent lieut.gov.; Oude is under a chief commissioner; Pegu and Tenasserim are embraced in British Burmah; and since 1874 Assam too has its own chief commissioner.

According to the census of 1901, the areas and populations of the four great provinces that constitute B. in the wider sense, and are under the administration of the lieut.-gov. of B., are as follows:

	Sq. Miles.	Pop. 1881.	Pop. 1901.
Bengal Proper.....	70,538	35,607,628	41,259,982
Behar.....	44,186	23,127,104	24,241,805
Chota Nagpur.....	26,966	4,225,989	4,900,429
Orissa.....	9,853	3,730,735	4,343,150
Total....	151,260	66,691,456	74,744,866

Thus the local government of B. (between 82° and 92° e., and 19° 40' and 28° 10' n.) has a pop. nearly twice as numerous as that of the United Kingdom. It consists mainly of the lower plains of the Ganges, and the whole of the great delta, and comprises a portion of the valley of the Brahmapootra, and the seaboard district of Chittagong. Chota Nagpur and Orissa are beyond the w. bounds of the plains of the Ganges.

In military matters India is regarded as composed of the three presidencies of Bengal, Madras, and Bombay. When the army of B. is spoken of, by B. a much larger area is meant than the lieut.-governorship or local government of B. Of the latter, the three provinces of Behar, Chota Nagpur, and Orissa are discussed in separate articles. B. Proper alone, the ancient Soubah, or the modern province, now claims more special notice.

B. Proper, then, is bounded on the n. by Nepaul, Sikim, and Bhotan; on the e. by Assam; on the s. by the Bay of Bengal; on the s.w. by Orissa and Gundwana; on the w. by Bahar. In its widest range it measures about 350 m. from w. to e., by an average of about 300 from s. to n., and covers an area of 70,430 sq. m., embracing about 30 administrative districts. Bengal Proper is somewhat smaller in extent and denser in population than Great Britain. Next to Calcutta, the cities of note are Moorshedabad, Dacca, Burdwan, Purneah, Hoogly, Midnapore, Rajmahal, Bancorah, Berhampore, etc. In B. Proper within the dist. of Hoogly, there stands also the French settlement of Chandernagore, containing somewhat less than 4 sq. m., with a pop. (1879) of 21,819. The Hoogly dist., moreover, con-

tained at one time two other dependencies of foreign countries, the Dutch Chinsura and the Danish Serampore, respectively ceded to England in 1824 and 1845. B. Proper, as a whole, may be regarded as almost a dead level. It is only on the s.w. frontier that it shows any hill-country, for towards the north it is said nowhere to reach even a single spur of the Himalaya. The principal rivers are the Ganges and the Brahmaputra, the former intersecting the country diagonally from n.w. to s.e., and the latter crossing its more easterly portion in a direction to the w. of s. During their lower courses, these main channels are so interlaced together as to form perhaps the most singular network of waters in the world; and their first point of confluence is said to be Jaffergunge—the head also of tide-water—lat. $23^{\circ} 52'$ n., long. $89^{\circ} 45'$ e., 160 m. from the sea. But the thousand-isled delta commences 120 m. further up the Ganges, where the highest offset, the Bhagirathi, breaks off to the right, afterwards to join a similar offset, the Jellinghee, in forming the Hoogly of Calcutta. Besides these two grand arteries, the province is watered by many less considerable rivers, chiefly northerly tributaries of the Ganges; so that even in the driest season there is scarcely any spot 20 m. distant from a navigable stream. During the rainy months, almost every water-course in the more level regions inundates the adjacent plains; while down in the delta, the separate floods sometimes mingle themselves into a breadth of 100 m. To say nothing of temporary inconvenience and loss, these visitations often inflict permanent damage wholly irreparable. The soil, in most parts of the province, is so decidedly alluvial that hardly a rock or a stone meets the ascending voyager within a distance of 400 m. from the sea—a soil offering but a feeble barrier to torrents which, besides gathering, as they rise, velocity and momentum, are liable to change their direction with each increase of depth and width. A twofold evil is the result. The Ganges and the Brahmaputra, resuming their gifts of a former age, cut for themselves new passages, to the injury of private individuals, while their old ones become so many seething swamps, to the injury of the public health. To a partial extent, such calamities have been averted by embankments. In these circumstances, the intercourse is ordinarily carried on by water: the Bengalee, in fact, may be viewed as almost amphibious; and on the Lower Ganges alone, there are said to be—unless steam may have reduced the number—about 30,000 professional boatmen. Speaking generally, the communications by land are merely beaten paths. The only exception of note—and that certainly a noble one—is the Grand Trunk Road, which traverses the province from Calcutta upward on its way to Delhi, Lahore, and the Indus. Much of the country is covered by thick woods and impenetrable jungles, which abound in wild animals, such as the jackal, the leopard, the tiger, and the elephant. The last is often tamed for domestic use, the more common beasts of burden being the camel and the horse, the latter of an altogether inferior variety. Lying, as B. Proper does, between the 21st parallel and the 27th, its climate and pro-

ductions, so far as the latitude alone is concerned, may be expected to approach uniformity over the entire province. But other causes intervene to affect the result. Thus, the nearer any place is to the sea, the heavier are the rains, and the broader is the overflow; the difference of moisture, however, being in the remoter localities, often made up by irrigation. Moreover, in an inverse proportion to the latitude, the alternate monsoons of the Bay of Bengal (see BENGAL, BAY OF) with their respective influences on the thermometer and barometer, are more sensibly felt in the maritime tracts. Lastly, to these special causes must be added a cause of more general character—the difference of elevation. Hence, wheat and barley, for instance, grow only on the higher grounds, while rice cannot thrive unless within the range of the inundations, yielding, too, an endless diversity of varieties, according to the infinitely fluctuating conditions under which it may be cultivated. Besides grains and vegetables in great variety and abundance, B. Proper gives to commerce opium, indigo, silk, sugar, tobacco, coffee, cotton, and jute. See CALCUTTA. Cotton manufactures, formerly extensive, particularly in the dist of Dacca, have latterly given way to British competition. The article of salt claims separate notice under another head in connection with revenue. Most of the salt consumed in B. Proper is made in deserts on the coast, alternately covered and abandoned by every tide, where the singularly powerful evaporation—said to be sometimes an inch a day on the depth of the adjacent bay—impairs the health of the laborer in proportion as it facilitates his labor. Of all these commodities, indigo (q.v.) is in one important view the most valuable, as being more likely than any other to attract English agriculturists to India. From the earliest times the dye appears to have been cultivated on the Lower Ganges, which for ages enjoyed, in this respect, the monopoly of the European trade. But when the cultivation of the plant was introduced into America, it gradually engrossed the market—the greater care in the preparation making up for a natural inferiority in the article itself; and it was only when British capital and skill undertook the manufacture, that B. began to resume its original supremacy in this branch of agriculture. The annual rainfall at Calcutta varies from 50 inches to 85, diminishing gradually towards the interior. At Calcutta also, in 1871, the mean temperature for May was $84^{\circ} 12'$; for July it was $83^{\circ} 12'$; and for Dec. $69^{\circ} 48'$. The prevailing winds were, from Jan. to May of the same year, n.w. to s.; from June to Sept. southerly; from Oct. to Dec. n.w. Iron and coal are understood to abound, though by no means continuously, in a tract as large as England, running to the w. from Rajmahal—a tract, however, not wholly in Bengal Proper. In 1757, a single battle, gained against odds of twenty to one, transferred B. from the Mogul's viceroy to the English East India Company—the Mogul's own grant of 1765 ratifying the decision of Plassy. The province of B. had in 1881 five colleges affiliated in the Univ. of Calcutta: but there were in all 29 'institutions' catalogued as giving univ. education; 223 high schools,

1,689 middle schools, and 2,019 lower schools of secondary education; and 42,131 primary schools. With engineering, normal, industrial, and other schools, there were in all 47,507 educational institutions, with 928,489 pupils. In 1879-80, 3,512 students were sent up to the examinations of the Univ. of Calcutta, of whom 1,291 passed. For the M.A. degree, 29 candidates (of a total of 48) passed. Pop. of Bengal Proper (1891) 38,114,380. (See tables near beginning of this article.)

BENGAL', BAY OF: portion of the Indian Ocean, of the figure of a triangle. Its s. side, drawn from Coromandel to Malacca, so as merely to leave on the right both Ceylon and Sumatra, may be stated at 1,200 m. long. The bay receives many large rivers—the Ganges and the Brahmaputra on the n., the Irrawaddy on the e., and on the w. the Mahanuddy, the Godavery, the Kistna or Krishna, and the Cauvery. On the w. coast, there is hardly anything worthy of the name of harbor; while on the e. there are many good ports—such as Aracan, Cheduba, Negrais, Syriam, Martaban, Tayay River, King's Island, besides several more in the islands between Pegu and Sumatra. The evaporation sometimes amounts, in the hottest season, to about an inch a day. The monsoons prevail over the whole of the n. part of the Indian Ocean, of which the bay is a part, and also over the maritime tracts of Bengal itself. The n.e. monsoon is clearly the ordinary trade-wind of the n. hemisphere; while that from the s.w. is shown by Maury, in his *Physical Geography of the Sea*, to be a deflection of the ordinary trade-wind of the s. hemisphere. Generally speaking, the n.e. and s.w. monsoons prevail respectively in summer and winter. Maury, however, shows that, on different parallels, there are different seasons for the alternate changes.

BENGAL' ARMY: see **EAST INDIA ARMY**—for account of the military forces in India, European and native; including notice of the changes consequent on the transfer of the company's powers to the crown, 1858.

BENGALI' LANGUAGE: see **HINDUSTAN**.

BENGAL' LIGHT, BLUE LIGHT, or BENGAL FIRE: a brilliant signal-light used at sea during shipwreck, and in ordinary pyrotechny for illuminating a district of country. It is prepared from nitre, sulphur, and the tersulphuret of antimony. The materials are reduced to fine powder, thoroughly dried, and intimately mixed in the following proportions by weight: nitre, 6; sulphur, 2; tersulphuret of antimony, 1. The mixture, kindled by a red-hot coal, red-hot iron, or flame, immediately bursts into rapid and vivid combustion, evolving a brilliant, penetrating, but mellow light, which, during the darkness of night, readily overcomes the gloom for a considerable space. As the fumes evolved during the combustion of the Bengal Light contain an oxide of antimony, and are poisonous, the light cannot be used with safety in rooms or inclosed spaces.

BENGAZI, bĕn-gă'zē: seaport town of Barca, n. Africa, finely situated on the e. coast of the Gulf of Sidra: lat 32°

BENGEL—BENGUELA.

6' n., long. 20° 2' e. Its people trade with Malta and Barbary in oxen, sheep, wool, and corn. The annual value of exports is about \$1,250,000. It has a castle, the residence of a bey, who governs it for the pasha of Tripoli. Its harbor is rapidly filling up with sand. Here are English, French, and Italian consuls. B. is interesting to the traveller, chiefly as having been the site of the ancient city of Hesperis, near which were several singularly luxuriant dells of large extent, enclosed within steep rocks rising 60 or 70 ft. These were supposed to answer well the description of the fabled gardens of the Hesperides. It first rose to importance under Ptolemy III., who called it Berenice, after his wife. It had then a large population, chiefly of Jews. Justinian afterwards fortified it. Pop. abt. 7,000.

BENGEL, *běng'ěl*, JOHANN ALBRECHT: 1687, June 24—1752, Dec. 2; b. Winnenden, Würtemberg: distinguished German theologian and commentator, whose writings have exercised considerable influence in England. His early life was checkered by many vicissitudes. After completing his theological curriculum, 1707, he became curate of Metzingen; a year afterwards, he was appointed theological tutor at Tübingen. Later in life, he held several high offices; among others, that of consistorial councilor and prelate of Alpirsbach, in Würtemberg, where he died. He was the first Protestant author who treated the exegesis of the New Test. in a thoroughly critical and judicious style. He did good service also in the rectification of the text, and was the first to propound the theory of families or recensions of MSS. He classified the documents in two divisions—the African, or older family; and the Byzantine, or more recent. This theory was adopted by Semler and Griesbach, and worked out into an elaborate system by the latter critic. The short notes in his *Gnomon Novi Testamenti* (Tübingen, 1742) have been translated into various languages, and were used by John Wesley in his well-known *Notes on the New Testament*. His books, *An Exposition of the Revelation of St. John* (Stuttgart, 1740), and *Ordo Temporum a Principio per Periodos (Economic Divinæ Historicus atque Propheticus)* (Tübingen, 1741), gained for B. a great reputation; some regarding him as an inspired prophet, but the majority as a visionary. In these works he calculated, on the basis which he supposed to be laid down in the Apocalypse, that the world would endure for the space of 7777 $\frac{7}{8}$ years; and that the 'breaking loose and the binding of Satan' would take place in the summer of 1836.

BENGUELA, *běn-gā'lǔ*: one of the five districts into which the Portuguese possession of Angola, W. Africa, is divided, the others being Congo, Loanda, Mossamedes, and Lunda. It lies about between lat. 9° and 16° s., and long. 12° and 17° e. The river Coanza washes it on the n., the mountains behind Cape Negro bound it on the s., and the Atlantic Ocean on the w. Its surface is generally mountainous, rising from the coast-line inland, in terraces; several important rivers flow

BENGUELA - BENICIA.

through it in a n.w. direction to the Atlantic. These rivers have numerous affluents, and water is everywhere so plentiful that it may be found by digging two ft. beneath the surface. Vegetation of the most luxuriant and varied description is the consequence of this humidity. The fruit-trees, both of tropical and subtropical climates, thrive extremely well. The inhabitants, however, are too ignorant or indolent to take advantage of the productiveness of the soil. Animals of all kinds common to western Africa abound in B., both on land and in water. Peacocks are said to be accounted sacred in B., and kept tame about the graves of the great chiefs. Sulphur, copper, and petroleum are found in the mountains, also gold and silver in small quantities. The coast is unusually unhealthy, but the interior is more salubrious. B. is inhabited by a variety of petty tribes, some of which are cannibals, and barbarous beyond even the common barbarism of Africa. As might be anticipated, religion exists only in the form of Fetichism. The town of B. is an important seaport.

BENGUELA, St. PHILIP DE: Portuguese cap. of Berguela; on the Atlantic, near the mouth of the river Catumbella; lat. $12^{\circ} 33'$ s., long. $13^{\circ} 25'$ e. It is very unhealthy; so inimical to European life, indeed, that the Portuguese affirm that their countrywomen could not live three months in it. It has a miserable appearance.

BENHAM, A. E. K., rear admiral, U. S. N.: b. 1832, April 10———. He entered the navy 1847; graduated from Annapolis 1853. Commissioned lieut., B. was in the battle of Port Royal; in 1862, promoted lieut. commander, served in blockade of Gulf of Mexico. Advanced to commander (1867), he served at Brooklyn navy yard. As capt. (1875) of the *Richmond* he went to Asia. In 1885, was made commodore and had charge of Mare Island navy yard. Promoted rear-admiral, he commanded the N. Atlantic squadron till 1893. and afterward did important service in S. America. He was retired 1894, Apr. 10.

BENI, *bā-nē'*: river of S. America, in the state of Bolivia, formed by the junction of all the streams that rush down from the eastern Andes between 14° and 18° s. lat. Flowing through the dept. of its own name, it joins the Mamore to form the Madeira, one of the largest affluents of the Amazon.

BENICARLO, *bā-nē-kār'lō*: a poor, dirty, walled town of Spain, province of Valencia. The inhabitants manufacture 'full-bodied' wines for export to Bordeaux, where they are used in preparing clarets for the English market. Bad brandy is also manufactured here; and the town being situated on the Mediterranean, a little fishing is carried on. Pop. nearly 8,000.

BENICIA, *bē-nīsh'ē-ā*: a town of Solano co., Cal., formerly the state capital; on Carquinez Strait (which connects Suisun and San Pablo bays), 40 m. n.e. of San Francisco. It is at the head of navigation for large steamships, and contains the machine-shops and the large depot of the Pacific Mail Steamship Co. It has also a U. S.

arsenal, the Missionary College of St. Augustine (Prot. Episc.), three churches, a young ladies' seminary, a monastery, a convent, an academy, and several newspapers. Pop. (1890) 2,361; (1900) 2,751.

BENIGHT, v. *bě-nī't* [*be*, and *night*]: to overtake with darkness. **BENIGHT'ING**, imp. **BENIGHT'ED**, pp.: **ADJ.** involved in darkness, ignorance, or superstition.

BENIGN, a. *bě-nīn'* [F. *bénin*—from OF. *benigne*—from L. *benig'nus*, kind—from L. *bēnē genitus*, well-begotten—*lit.*, of or from a good race]: of a kind and gentle disposition; gracious; salutary. **BENIGNANT**, a. *bě-nīg'nānt*, kind; gracious. **BENIG'NITY**, n. *-nī-tī* [F. *bénignité*—from L. *benignitātem*]: kindness; goodness of heart. **BENIGNLY**, ad. *bě nīn'lī*, kindly; favorably. **BENIG'NANTLY**, ad. *-lī--* **BENIGN TUMOR**, term used technically in *med.*, in the sense of not life-destroying; in contradistinction from malignant or life-destroying tumor, e.g., cancer.—**SYN.** of 'benign': liberal, gracious; kind; propitious; generous; favorable; salutary; benignant;—of 'benignity'—see **BENEVOLENCE**.

BENI-HASSAN, *bā-nē-hās'sēn*: village of upper Egypt, on the e. bank of the Nile; lat. 27° 53' n., long. 30° 55' e. The place is remarkable for the numerous grottoes in its vicinity, among the most interesting in Egypt. These catacombs are excavated in the calcareous bank—apparently at one time washed by the Nile, now flowing further w.—in which some low hills terminate. Of the catacombs, numbering about 30, supposed to have been used as sepulchres, some have three apartments, the largest 60 by 40 ft.; and pillars are cut out of the rock in imitation of the columns that support the roofs of buildings. These shafts are polygons of sixteen sides, fluted except on the inner side, which is left smooth for a line of hieroglyphics. They are usually about 16 ft. high, and from 3 to 5 ft. in diameter at the base. The sides of the caverns are covered with paintings representing the industrial pursuits, sports, pastimes, etc., of the ancient Egyptians. The paintings, though not so artistic as those in the Theban catacombs, are of earlier date, and throw much light on the manners and customs of the people.

BENI-ISGUEN, *bā'nē-īs-gēn'*: large town in the interior of Algeria, surrounded by a rampart, flanked with towers, and said to be nearly as populous as Algiers. It has some trade in grain.

BENI-IS'RAEL (Sons of Israel): remarkable race in the w. of India, who preserve a tradition of Jewish descent, and have from time immemorial acknowledged the law of Moses, although in many respects conforming to the idolatry of the surrounding Hindus. Dr. Wilson estimates their whole number at not much more than 5,000. Their original settlement was at Navagaum, about 30 m. from Bombay, where they were protected by the native princes; they have spread through the maritime parts of the Konkan, and some of them are now found in Bombay itself. Their features resemble those of the Arabian Jews.

BENIN.

Until recently, they were ignorant even of the names of many of the books of the Old Testament; and it was not without hesitation that they consented to receive those of the later prophets. Dr. Wilson supposes them to be a remnant of the ten tribes, and to have settled in India long before the Jews of Cochin. See COCHIN (HINDUSTAN). They reject the name of Jews, and deem its application to them a reproach. They have no MS. of the law in their synagogues. Their communities are governed by a *mukadam*, or head-man of their own number; and their religious assemblies are presided over by a *kazi*, who also performs circumcision and other rites.

BENIN, *běn-ēn'*: a former negro kingdom in Western Africa, on the bight of B., annexed to Southern Nigeria 1897. It derives its name from the w. arm of the Niger—formerly supposed to be a main river, and styled *Benin* or *Formosa*—which leaves the Niger at Kirii, and, after a course of about 115 m., forms an embouchure two m. wide. The country of B. is bounded on the n.e. and the e. by the Niger; on the s. by the Bay of Benin, into which Cape Formosa is projected; on the w. by Dahomey; on the n.w. by Yariba. The coast is indented by numerous estuaries, and is generally level; but the land gradually rises towards the n., until it reaches an elevation of 2,500 ft. in the Kong Mountains. The soil is very fertile, producing rice, yams, palms, sugar, etc. The animals are the same as in other parts of Guinea, but the hippopotamus is more common. The population is so dense that the king—who was worshipped as a great *fetich*—could, in its most flourishing days, bring into the field an army of 100,000 men. The government, customs, and superstitions of B. are like those of Ashantee. The kingdom was long declining, and a large part became broken up into independent states. The capital, Benin, in lat. 6° 20' n., long. 5° 50' e. (pop. abt. 15,000), has considerable trade. Messrs. Smith and Moffat, who visited it 1838, describe its market-place as very offensive, from the effluvia rising from a heap of human skulls; while in the outskirts of the town they were still more revolted by the sight of turkey-buzzards feeding on bodies of men recently decapitated. At Gato, a harbor lower down the river, where the traveller Belzoni died, European merchants formerly had factories. Warree is another principal place. The export trade of B. consists of palm-oil, salt, blue coral, jasper, wild-beast skins, slaves, etc. B. was discovered by the Portuguese Alfonso de Aveiro, 1486. In 1786, the French founded settlements at the mouth of the river which were destroyed by the British, 1792.

BENIN, BIGHT OF: that portion of the Gulf of Guinea (q.v.) extending from Cape Formosa on the e. to Cape St. Paul's on the w., about 390 m., with a coast-line of 460 m. Several rivers empty into the Bight, the three principal of which, Benin, Escardos, and Forcados, are accessible to shipping. The coast along the Bight was blockaded, 1851, by the British fleet engaged in the suppression of the slave

BENISON—BENJAMIN.

trade. Palm-oil and ivory are the principal articles of trade at the towns on the coast.

BENISON, n. *běn'ĩ-zn* [OF. *beneison* or *benoison*, benediction—from F. *bénir*, to bless: L. *benēdictiōnem*—from *běně*, well; *dictus*, spoken]: blessing; benediction.

BENI-SOUEF, *běn-ē-swěf*: town of central Egypt, on the right bank of the Nile, about 70 m. s.s.w. of Cairo; one of the stations where travellers making the tour of Egypt usually stay. It is the entrepôt of all the produce of the fertile valley of Fayoum, and has cotton-mills and alabaster quarries. Pop. 10,085; prov. 219,573.

BENITIER, *bā-nē-tē-ā*, or **BENATURA**: the vase or vessel in which consecrated or 'holy water' is held in Rom. Cath. churches. In England, the B. was known by the names of the 'holy-water font,' the 'holy-water vat,' the 'holy-water pot,' the 'holy-water stone,' the 'holy-water stock,' and the 'holy-water stoup.' Benitiers were either movable or fixed. Portable ones, commonly of silver, were used in processions. Fixed benitiers were placed near the doors of churches, so that the people might dip their fingers in the water, and cross themselves with it as they entered or left the church.

BENJAMIN, n. *běn'jā-mĭn*: common name of the gum **BENZOIN**, of which *benjamin* is a vulgar corruption: see under **BENZOATE**. **BENJAMIN TREE**: see **BENZOIN**.

BENJAMIN, *běn'jā-mĭn* (a Hebrew proper name, signifying 'Son of my Right Hand,' or 'Son of Good Fortune'): youngest and most beloved of the sons of Jacob. He was the head of one of the twelve tribes of Israel. The tribe in the desert reckoned 35,400 warriors above 20 years of age; and on the entrance into Canaan, 45,600. In the time of 'the Judges,' the tribe of B. became involved in war with the eleven other tribes of Israel, and all the male descendants of B. were put to the sword (Judges xx., xxi.), excepting 600. Saul, the first king of Israel, was of the tribe of B., which remained loyal to his son, Ishbosheth. After the death of Solomon, B., with Judah, formed the kingdom of Judah; and on the return from the Captivity, these two constituted the principal element of the new Jewish nation.

BEN'JAMIN, SAMUEL GREENE WHEELER: author: b. in Argos, Greece, 1837, Feb. 12. He graduated at Williams College 1859, and was asst. librarian of the N. Y. State Library 1861–64, and U. S. minister to Persia 1883–85. He has published the following books: *Constantinople, Isle of Pearls, and Other Poems* (1860); *Ode on the Death of Abraham Lincoln* (1865); *The Turk and the Greek* (1867); *Tom Roper* (1868); *Muretus's Advice to His Son*, a metrical translation from the Latin (1870); *The Choice of Paris: a Romance of the Troad* (1870); *What is Art?* (1875); *Contemporary Art in Europe* (1877); *Art in America* (1879); *The Multitudinous Seas* (1879); *The Atlantic Islands* (1879); *Our American Artists* (1879); *The World's Paradieses* (1880); *Troy: its Legend, Literature, and Topography* (1880); *A Group of Etchers* (1882); *Cruise of the*

BENJAMIN OF TUDELA—BEN-LOMOND.

Alice May (1883); *The Story of Persia* (1886); and *Persia and the Persians* (1886). He has drawn many illustrations for his own books, for magazines, and specially for an illustrated edition of Longfellow's poems. His most important paintings are the following: *Home of the Sea Birds* (1875); *Porta da Cruz, Madeira* (1876); *The Corbière or Sailor's Dread* (1876); *The Wide, Wide Sea* (1877); *Yachts Struck by a Squall* (1879); *Among the Breakers* (1879); and *In the Roaring Forties* (1882).

BENJAMIN OF TUDELA: a Jewish rabbi, b. Navarre, Spain; d. 1173. He was the first European traveller who gave information respecting the distant East. Partly with commercial views, and partly to trace the remnants of the 'lost tribes,' he made a journey, 1159-73, from Saragossa, through Italy and Greece, to Palestine, Persia, and the borders of China, returning by way of Egypt and Sicily. He died in the last year of his travels. His notes of foreign lands—originally written in Hebrew, and frequently republished in Latin, English, Dutch, and French—are occasionally concise and valuable; but on the whole must be accepted with qualifications. Like all the early travellers, B. had a greedy ear for the marvellous. His errors also are numerous. The latest edition by Asher (London, 1841) contains the original text, with an English translation and learned annotations.

BEN LAWERS, *bēn law'arz*: mountain in Perthshire, Scotland, about 32 m. w.n.w. of Perth, on the w. side of Loch Tay. This mountain, which is easy of ascent, is rich in Alpine plants, and there is a magnificent view from its summit, 3,984 ft. high, or with the cairn at the top, 4,000 ft. Ore of titanium is found in Ben Lawers.

BEN LEDI, *bēn-lēd'dē*: mountain in Perthshire, Scotland, 4 m. w.n.w. of Callander, with an elevation of 2,875 ft. It received its name from the Druids, who are supposed to have had a place of worship on its summit—the Gaelic words *Beinn-le-Dia*, signifying 'Hill of God.' This mountain is celebrated in Scott's *Lady of the Lake*.

BEN-LOMOND, *bēn-lō'mond*: celebrated Scottish mountain in the n.w. of Stirlingshire, on the e. side of Loch Lomond, about 27 m. w.n.w. of Stirling. This mountain, forming the s. extremity of the Grampians or Central Scottish Highlands, is 3,192 ft. high, and consists of mica slate, with veins of quartz, greenstone, and felspar porphyry. The summit is precipitous on the n. side, with a gentle declivity on the s.e.; it is covered with vegetation to the top. Though considerably surpassed in height by several other Scottish mountains, none are more imposing. Seen from Lōch Lomond, it appears a truncated cone, and from between Stirling and Aberfoyle, a regular pyramid. It has perhaps been ascended by a greater number of tourists than any other of the Highland mountains. The magnificent view from the top, in clear weather, includes the whole length (30 m.) of Loch Lomond, with its diversified isles, and wooded and cul-

tivated shores, the rich plains of Stirlingshire and the Lothians, the windings of the Forth, the castles of Stirling and Edinburgh, the heights of Lanarkshire, the vales of Renfrewshire, Ayrshire, Firth of Clyde, Isles of Arran and Bute, the Irish coast, Kintyre, and the Atlantic. The north semicircle of the horizon is bounded by Bens Lawers, Voirlach, Ledi, Cruachan, and Nevis; while some of the beautiful Perthshire lochs are seen.

BEN MACDHUI, *bĕn māk-d'è*: mountain of Aberdeenshire, belonging to the Grampian range, formerly thought the highest in Britain, now known to be second—its elevation being 4,296 ft.

BENNET, or BENET, n. *bĕn'ĕt* [L. *benedictus*, praised or commended. F. *benoîte*]: the common name for the *Gēum urbānum*, or herb avens, a medicinal plant.

BENNETT, JAMES GORDON (1st): 1795, Sep. 1—1872, June 1; b. New Mill, near Keith, Scotland: journalist. His ancestry was French Roman Catholic, and at the age of 14 he went to Aberdeen, with the intention of studying for the priesthood. He soon found that this vocation would be unsatisfactory, and decided to emigrate to America, and in 1819, Apr., he arrived at Halifax, Nova Scotia, where he endeavored to earn his living by teaching bookkeeping. Not prospering in this he went to Boston, and for a time was engaged as a proof-reader. About 1822 he removed to New York, where he contributed to newspapers, but soon again removed to Charleston, S. C., and entered the office of the *Charleston Courier* as an assistant. In 1824, Mr. B. returned to New York, and tried various pursuits, at one time starting a commercial school and again lecturing on political economy, but all without success, and he turned again to newspaper work in a small way, writing paragraphs, poetry, and sketches, and taking assignments as a reporter when he could obtain them. In 1825, he purchased the *Sunday Courier* on credit, but after running it for a short time was obliged to give it up. The next year he formed a connection with the *National Advocate*, but this paper he left from a disagreement with its policy. He then became an associate editor of Major Noah's *Enquirer*, joined the Tammany association, and in 1828 was sent to Washington by the *Enquirer* as a special correspondent, writing chatty personal letters which became popular and were generally copied. The *Enquirer* was soon consolidated with another paper, and became the well-known *Courier and Enquirer*, of which Gen. James Watson Webb was editor and Mr. B. assistant. Thus ably conducted, it soon took a leading position in the press, but when it changed its policy and deserted Andrew Jackson, Mr. B. retired from it, and for thirty days ran a cheap party organ, and later a similar paper called *The Pennsylvanian*, in Philadelphia. Finding that he was not being sustained by the party, he returned to New York, and, 1835, May 6, issued the first number of the *Herald*, arranging with two young printers, Anderson and Smith, to print it as partners. It

was a little four-page sheet, sold for a cent a copy, and the only original writing it contained was furnished by Mr. B. himself, who filled it with striking or sensational news, and spicy personal intelligence, and particularly with a money article, then for the first time made a feature in American journalism. Two months after the paper started the printing-office was burned, and Mr. B.'s partners gave up the enterprise, leaving him to his fate, and on Aug. 31 he started afresh as sole proprietor. A thorough, detailed report of the great fire of 1835, Dec. 16, gave the *Herald* its first impetus towards the success which it soon attained.

In 1838, Mr. B. began to organize his system of correspondence, engaging special persons in the principal American cities and in Europe. He was also the first to employ newsboys in distributing his paper. In fact, it may be briefly stated that all of the best and most popular features of modern American journalism were originated by Mr. B. and the *New York Herald*. Mr. B., on account of the liberal use of personalities in his paper, became frequently engaged in encounters with persons who had or imagined that they had grievances against him, and as all such incidents were reported in full in the *Herald*, the paper soon achieved a reputation peculiar to itself in this particular also. Within six years after its establishment the income of the *Herald* is stated to have been at least \$100,000.

In 1846 the first instance of extended newspaper telegraphing was given by the *Herald*, a long and important speech by Henry Clay being specially telegraphed to it from Washington. The circulation of the paper is said to have more than doubled during the Rebellion, its expenses, however, being increased enormously through the employment of its very large number of war correspondents, one or more of whom were occupied during the entire war at every military headquarters and accompanying every principal army movement.

Mr. B. was a born journalist, and his capacity for news-gathering, his 'nose for news,' was certainly unequalled by any of his contemporaries. His estimate of the value of news, both relative and absolute, was unerring. He could detect beforehand the elements of any forthcoming occurrence most certain to engross the attention and awaken the interest of the public. Of the great triumvirate of New York editors—Bennett, Greeley, and Raymond—Mr. B. was *facile princeps*. In 1840, Mr. B. married Miss Henrietta Agnes Crean, a lady of remarkable talents and great force of character, who was also an accomplished musician and a most charitable and kind-hearted woman. She died in Italy, 1873, Mar. 31.

Mr. B. died in New York. He had two children, a son, James Gordon Bennett, Jr., and a daughter Jeannette, who married to Isaac Bell, Jr., U. S. minister resident at the Hague.

BENNETT, JAMES GORDON, Jr.: journalist: b. New York, 1841, May 10. He received a liberal education in Europe, becoming an accomplished linguist, but in early

life showed little taste for a literary career. His disposition was bold and adventurous, and he early gave much attention to yachting, in which sport he distinguished himself (1866) by sailing his schooner-yacht *Henrietta* in the ocean race from Sandy Hook to the Needles, Isle of Wight, in 13 days, 21 hours, and 55 minutes, winning the race from two competing yachts whose owners did not choose to take the risk of personally sailing them. For several years he had been closely studying the details of the business management of his father's newspaper, and 1866 he succeeded Frederick Hudson as managing editor. From that time till his father's death (1872) he largely directed the course of the *Herald*, and he became sole proprietor of the paper by his father's will. He fitted out the *Jeanette* Polar expedition, sent Henry M. Stanley in search of Dr. David Livingstone, organized a system of storm prognostications in his paper, greatly valued by shipping masters on both sides of the Atlantic, was associated with John W. Mackay in laying the Commercial cable, founded the *Evening Telegram* in New York, and established daily editions of the *Herald* in Paris and London. He has travelled extensively over the world, resides chiefly in Paris, and directs the management and policy of his newspapers by telegraph.

BEN'NETT, JOHN HUGHES: 1812, Aug. 31—1875, Sep. 25; b. London: physician. He was educated in Exeter; began studying medicine 1829; graduated at the medical dept. of Edinburgh Univ. 1837; spent four years in post-graduate study in France and Germany; founded and was pres. of the Paris Medical Soc.; settled in Edinburgh 1841; and was prof. of the institutes of medicine in the Edinburgh Univ. 1848–74. He is best known as the first advocate of the use of cod-liver oil in all consumptive diseases, and as the first lecturer in Great Britain on histology and the use of the microscope. He conducted many original investigations, and contributed his conclusions freely to the medical journals.

BENNETT, *běn'nět*, Sir WILLIAM STERNDALÉ, MUS. D., D.C.L.: 1816, Apr. 13—1875, Feb. 1; b. Sheffield: English pianist and composer. After studying under Crotch, Holmes, and Potter, in the Royal Acad., London, he attracted the notice of Mendelssohn at the Düsseldorf Musical Festival, appeared with success at Leipzig in the winter of 1837–8, and was received with great applause when he returned to London. In 1838, he was elected member of the Royal Soc. of Music. In 1856, he succeeded Mr. Walmsley as prof. of music at Cambridge. At the opening of the International Exhibition, 1862, Tennyson's ode, *Uplift a Thousand Voices*, set to music by B., was fervidly sung. In 1868, he became principal of the Royal Acad. of Music; and was knighted 1871.

BEN NEVIS—BENNINGSEN.

BEN NEVIS, *běn nĕv'is*: highest mountain (4,406 ft.) in Great Britain, in Inverness, Scotland. It is difficult of ascent, with a precipice of 1,500 ft. on the n.e. side. Granite and gneiss form the base, which above is composed of porphyry. A meteorological observatory was erected on the summit in 1883.

BENNINGSEN, *ben'ing-sèn*, **LEVIN AUG. THEOPHILUS**, Count: 1745, Feb. 10—1826, Oct. 3; b. Brunswick: one of the most famous Russian generals. His father was an officer in the Brunswick Guards; and B. himself entered the Hanoverian service for a time; but having squandered the property left him, he joined the Russian army, 1773, and in the Turkish war soon attracted the notice of the empress Catherine, who employed him to carry out her designs against Poland. He was one of the leaders of the conspiracy against the emperor Paul (1801); though he is said not to have been present at the catastrophe, but to have prevented the empress Maria from rushing to her husband when she heard his cries. He fought with considerable success in the battle of Pultusk (1806), and held the chief command in the obstinate and murderous struggle at Eylau (1807). When Napoleon invaded Russia in 1812, B. commanded the Russian centre on the bloody field of Borodino, and gave his voice for fighting a second battle before the walls of Moscow. Before the French began their retreat, he gained a brilliant victory over Murat at Woronowa (Oct. 18). Differences with Kutusov, who would not adopt B.'s plan to prevent the French from crossing the Beresina, made him retire from the army; but after Kutusov's death, he took the command of the Russian army of reserve, which entered Saxony 1813, July, fought victoriously at the battle of Leipsic, and was created count by the emperor Alexander on the field. When Leipsic was taken, it was he that was commissioned by the allies to announce to the king of Saxony that he was a prisoner. Failing health made him retire from the Russian service, 1818, to his paternal estate in Hanover, where he died. His son, **ALEX. LEVIN B.**, became a leading Hanoverian statesman.

BENNINGSEN, RUDOLF VON: German statesman: 1824, July 10—; b. Lüneburg, Hanover. He studied jurisprudence at Göttingen and Heidelberg.

BENNINGTON—BENSON.

1842-45; entered the Hanoverian civil service 1846; became judge of the superior court at Göttingen 1854; but resigned 1856 to enter the Hanoverian chamber of deputies: there he became leader of the opposition. B. acted an important part in the founding of the German empire; was pres. of the German house of delegates 1873-79; and refused re-election to the house 1883 to devote himself to the interests of the national liberal party in Hanover.

BENNINGTON, *běn'ning-ton*: cap. of Bennington co., Vermont, 55 m. s. by w. of Rutland, 35 m. n.e. of Albany, N. Y. It has four churches, newspapers, a graded school, a national bank, foundries, four knitting-mills, and manufactories of machinery, woolen goods, and lumber. It contains also large manufactories of fine parian-ware and porcelain from materials that abound in its vicinity. There is an observatory on Mount Anthony near by. Pop. (1900) 5,656. Total pop. of township, 8,033. The 'Battle of B.' was fought 1777, Aug. 16, when Gen. Stark with the New Hampshire militia defeated a detachment of Burgoyne's army commanded by Col. Baum. Stark, pointing to the enemy, said to his soldiers that he would gain a victory over them, or Molly Stark should be a widow that night. The soldiers, fired by the same patriotic enthusiasm, adopted 'Molly Stark' as their watchword, and by their heroic valor made that one of the glorious days of the Revolution. The English lost 200 killed, 600 prisoners, and 1,000 stand of arms. The Americans lost 14 killed, and 42 wounded (see **STARK**, **JOHN**). —A monument to commemorate this victory was erected at B. 1891. It stands on a commanding eminence, 283 ft. above the Walloomsac river. It is an obelisk of native stone, faced with dolorite. From base to top of capstone its height is 301 ft. 10½ in.; the base is 37 ft. 4 in. square. A lookout chamber 188 ft. above the foundation is reached by means of an iron staircase. The total cost of the monument was \$100,000, of which sum congress contributed \$40,000, Mass. \$10,000, N. H. \$7,500, Vt. \$15,000 (and the site); the remainder by private subscription.

BEN-NUT, and **BEN-OIL**: see under **MORINGA**.

BENSHIE, *ben'shē*, or **BANSHEE**, *bān'shē*: in the folk-lore of the Irish and western Highlanders of Scotland, a female fairy who makes herself known by wailings and shrieks, premonitory of a death in the family over which she exercises a kind of guardianship. This notion is woven into many folk-tales of rare pathos and beauty. A guardian spirit of the same kind occurs frequently in the folk-lore of Brittany. The name is supposed to be formed from the Irish Celtic *ben* or *bean*, a woman; and *sighe*, a fairy.

BENSON, *běn'sūn*, **EDWARD WHITE**, D.D.: Anglican archbishop: 1829, July 14—1896, Oct. 11; b. near Birmingham, England. He was educated at King Edward's School, Birmingham, and in Trinity Coll., Cambridge; and graduated at his college 1852 as First Class in classical honors, and Senior Optime in the mathematical tripos. He was (1853-59) an asst. master at Rugby School, and was head-master

BENSON—BENT GRASS.

of Wellington Coll. 1859-72. On the restoration of the ancient see of Truro, B. was made its bp. 1877, and at once began the erection of a cathedral: the mere shell of the edifice cost \$500,000, and most of the money was collected through his exertions. On the death of Abp. Tait, 1882, B. was appointed his successor in the archiepiscopal see of Canterbury. Among his published writings are vols. of *Sermons*; *The Cathedral, Its Necessary Place in the Life and Work of the Church*; *Christ and His Times*.

BENSON, EGBERT, LL.D.: 1746, June 21—1833, Aug. 24; b. New York. He graduated 1876, at King's (now Columbia) College, studied law and rose in his profession, becoming first atty.-gen. of the state 1777. He was a member of the revolutionary committee of safety, a member of the first state legislature, and of the continental congress 1784-88. He was a judge of the supreme court of N. Y., 1794-1802, several times a member of congress, and first president of the N. Y., Hist. Society.

BENSON, EUGENE: artist: 1837—; b. Hyde Park, N. Y. He was educated in New York, and became a pupil in the National Acad. of Design 1856, studying also in Paris, Venice, and Rome. He painted for a while in New York, in the same studio with W. J. Hennessy, but eventually settled in Rome, where he has remained, with occasional excursions into the East. Among his best-known paintings are *Strayed Maskers* (1873); *Interior of St. Mark's* (1876); *Bazaar at Cairo* (1877); *Fire Worshippers* (1879); *Mountain Torrent* (1881); *State Secret in Venice* (1882); and *Ariadne* (1883). B. has written several art works.

BENSON, JOSEPH: English Methodist clergyman: 1748, Jan. 25—1821, Feb. 16. After receiving a secular education, he studied theol. intending to enter the priesthood of the Church of England. He became interested in Methodism, however, and joined that sect, at the time when Wesley's earnestness and fervor had made it most powerful and popular. B. succeeded Wesley as pres. of the conference of the church, and became editor of the *Wesleyan Magazine*. He was author of *Life of John Fletcher* and *Commentary on the Holy Scriptures*.

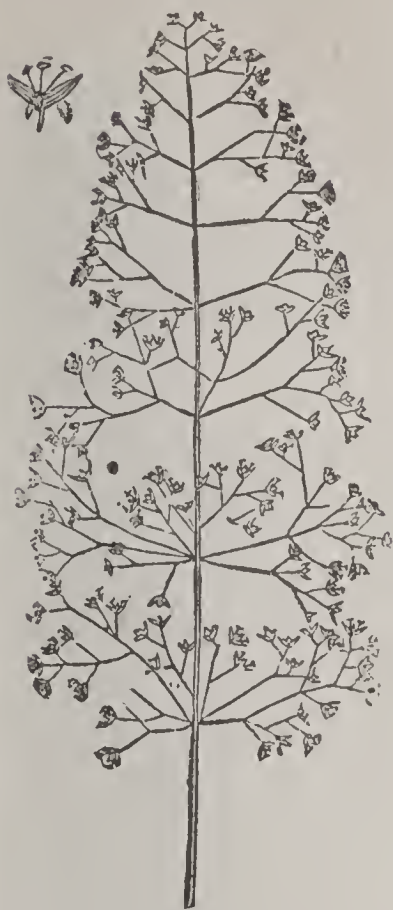
BENT, n. *běnt* [see BEND]: curvature; the tension or strain of the mental powers; disposition towards something; inclination: ADJ. curved; inclined; prone to; determined; in *bot.*, hanging down towards the ground. TOP OF ONE'S BENT, to the very utmost that his inclination and bias would permit, as 'he was fooled to the *top of his bent*'. BENT ON IT, resolutely resolved upon it.—SYN. of 'bent, n.': bias; inclination; turn; propensity; tendency; proneness; prepossession.

BENT, v. *běnt*: pt. and pp. of BEND, which see.

BENT GRASS, or BENT, *běnt* [Ger. *binse*, reed or bent grass], (*Agrostis*): genus of grasses, distinguished by a loose panicle of small, one-flowered, laterally compressed spikelets; the glumes unequal, awnless, and longer than the paleæ, which are also unequal, and of which the inner

BENT GRASS.

one is sometimes wanting, and the outer sometimes has and sometimes has not an awn; the seed free. For explanation of these terms, see GRASSES. The species are numerous, and are found in almost all countries and climates. All are grasses of a slender and delicate appearance. Some are very useful as pasture-grasses and for hay, on account of their adaptation to certain kinds of soil, although none of them is regarded as very nutritious.—The COMMON BENT GRASS (*A. vulgaris*) is known in this country as RED TOP (and in Penn., etc., as HERD'S GRASS), and is abundant in many parts of the continent of Europe and America. In the United States it is a valuable grass, both n. and s., not only flourishing in moist land, to which it is specially adapted, but also growing in thin and dry soils. If rather closely fed, it is a good grass for pastures; and in rich soils it yields a large quantity of hay which, if cut before the seed is ripe, is of very fair quality. It is one of our most permanent grasses.—The WHITE BENT



Bent Grass (*Agrostis vulgaris*).

GRASS (*A. alba*), in some localities known as WHITE-TOP, resembles the species just described, but is not considered as valuable. On very moist and rich soils it often yields large crops. There are several varieties, but in all of them the *ligule* (the little membranous tongue at the junction of the blade of the leaf with its sheathing base) is elongated and acute, while in *A. vulgaris* it is very short, and appears as if cut off. A variety so little different as scarcely to deserve the name, but with somewhat broader leaves and more luxuriant habit of growth, was at one time much celebrated among British farmers under the name FIORIN GRASS, or *Agrostis stolonifera*. It was unduly lauded, and the consequent disappointment led to its being unduly disparaged. It is a useful grass in moist grounds, newly reclaimed bogs, or land liable to inundation. The first three or four joints of the culms lie flat on the damp soil, emitting roots in abundance, and it was formerly propagated by chopping these into pieces, and scattering them, but now generally by seed. Other U. S. species are *A. elata*, swamps, s.; Thin Grass (*A. perennans*), damp shade; Hair Grass (*A. scabra*), dry places, common. Herd's Grass is a name used in Britain for '*A. dispar*' (?), but in this country applied to Timothy Grass, and s.to Red-top. '*A. dispar*' is

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said to be highly esteemed in France, particularly upon account of the great crop which it yields on deep sand, and on low, moist, calcareous soils.—**BROWN BENT GRASS** (*A. canina*) is native in N. America, and has alpine varieties; in Britain, it is abundant, and is valued for mixing with other grasses to form permanent pasture on poor wet peaty soils.—**SILKY BENT GRASS** (*A. Spica venti*) is a beautiful grass, with very slender branches to its ample panicle, which, as it waves in the wind, has a glossy and silky appearance. It is common in southern and central Europe; an annual grass, occasionally sown in spring to fill up blanks in grass-fields.

BENTY, a. abounding in bents; overgrown with bents; resembling bents.

BENTHAM, *ben'tam* or *běn'tham*, JEREMY: 1748, Feb. 15—1832, June; b. in Red Lion street, Houndsditch, London; eccentric but eminent writer on ethics and jurisprudence. He was son of a wealthy solicitor, and received his early education at Westminster School; and when little more than twelve years of age, he went to Queen's College, Oxford, where he took his Master's degree, 1766. Before entering the univ. he had, by his precocious tendencies to speculation, acquired the title of 'philosopher.' On graduating, his father, who expected his son to become lord chancellor, set him to the study of law at Lincoln's Inn, where he was called to the bar, 1772. He never practiced in his profession, however, for which he had a strong distaste, which is paraded in many of his writings. Turning from the practice of law to its theory, he became the greatest critic of legislation and government in his day. His first publication, *A Fragment on Government*, 1776, was an acutely hypercritical examination of a passage in Blackstone's *Commentaries*, prompted, as he has himself explained, by 'a passion for improvement in those shapes in which the lot of mankind is meliorated by it.' The *Fragment* abounds in fine, original, and just observation; it contains the germs of most of his after-writings, and must be highly esteemed, if we look away from its disproportion to its subject and the writer's disregard of method. The *Fragment* procured him the acquaintance of Lord Lansdowne, in whose society at Bowood he afterwards passed perhaps the most agreeable hours of his life. It was in the Bowood society that he conceived an attachment to Miss Caroline Fox (Lord Holland's sister), who was still a young lady, when B., in the 54th year of his age, offered her his heart and hand, and was rejected 'with all respect.' In 1778, he published a pamphlet on *The Hard Labor Bill*, recommending an improvement in the mode of criminal punishment; which he followed in 1811 by *A Theory of Punishments and Rewards*. In these two works B. did more than any other writer of his time to rationalize the theory of punishments by consideration of their various kinds and effects, their true objects, and the conditions of their efficiency. He published in 1787 *Letters on Usury*; 1789, *Introduction to the Principles of Morals and Legislation*; 1802, *Discourses on Civil and Penal Legislation*; 1813, *A*

Treatise on Judicial Evidence; 1817, *Paper Relative to Codification and Public Instruction*; 1824, *The Book of Fallacies*. These were followed by other works of less consequence. All his productions have been collected and edited by Dr. Bowring and Mr. John Hill Burton, and published in 11 vols. It is well, however, for B.'s reputation that it does not rest wholly on his collected works; and that he found in M. Dumont, Mr. James Mill, and Sir Samuel Romilly, generous disciples to diffuse his principles and promote his fame. In his early works his style was clear, free, spirited, often eloquent; but in his later works it became repulsive, through being overloaded and darkened with technical terms. It is in regard to these more especially that M. Dumont has most materially served his master by arranging and translating them into French, through the medium of which language B.'s doctrines were propagated throughout Europe, till they became more popular abroad than in his own land. Mr. James Mill, himself an independent thinker, did much in his writings to extend the application in new directions of B.'s principles, a work in which, apart from his original efforts, he has achieved a lasting monument of his own subtilty and vigor of mind. Criticisms of B.'s writings will be found in the *Edinburgh Review*, by Sir Samuel Romilly; and in the *Ethical Dissertation* (*Encyclopædia Britannica*, 7th and 8th eds.), by Sir James Mackintosh. But the most valuable contribution in English to his reputation is unquestionably *Benthamiana*, by Mr. John Hill Burton, advocate, containing a memoir, selections of all the leading and important passages from his various writings, and an appendix embracing an essay on his system; and a brief, clear view of all his leading doctrines.

In all B.'s ethical and political writings, the doctrine of utility is the leading and pervading principle; and his favorite vehicle for its expression is the phrase, 'the greatest happiness of the greatest number,' which was first coined by Priestley, though its prominence in politics has been owing to Bentham. 'In this phrase,' he says, 'I saw delineated for the first time a plain as well as a true standard for whatever is right or wrong, useful, useless, or mischievous, in human conduct, whether in the field of morals or politics. It is noticeable that the phrase affords no guidance as to how the benevolent end pointed at it is to be attained; and is no more than a quasi-concrete expression of the objects of true benevolence. In considering how to compass these objects, B. arrived at various conclusions, which he advocated irrespective of the conditions of society in his day, and of the laws of social growth which, indeed, neither he nor his contemporaries understood. He demanded nothing less than the immediate remodelling of the government, and the codification and reconstruction of the laws; and insisted, among other changes, on those which came at a later day to be popularly demanded as the points of the 'Charter'—viz., universal suffrage, annual parliaments, vote by ballot, and paid representatives. However impossible some of these schemes were, it can-

not be denied that B. did more to rouse the spirit of modern reform and improvement in laws and politics than any other writer of his day. Many of his schemes have been, and many more are, in the course of being slowly realized; the end and object of them all was the general welfare, and his chief error—apart from his over-estimate of the value of some changes which he proposed—lay in conceiving that organic changes are possible through any other process than that of growth and modification of the popular wants and sentiments. It was this error that led the philosopher, in his closet in London, to devise codes of laws for Russia (through which country he made a tour, 1785) and America, the adoption of which would have been equivalent to revolutions in these countries, and then bitterly to bewail the folly of mankind when his schemes were rejected.

In ethics, as in politics, he pressed his doctrines to extremes. It has been said that his doctrine of utility was so extended that it would have been practically dangerous, but for the incapacity of the bulk of mankind for acting on a speculative theory.

By the death of his father, 1792, B. succeeded to property in London, and to farms in Essex, yielding from £500 to £600 a year. He lived frugally, but with elegance, in one of his London houses (Queen's Square, Westminster); and, employing young men as secretaries, corresponded and wrote daily. By a life of temperance and industry, with great self-complacency, in the society of a few devoted friends (who, says Sir James Mackintosh, more resembled the hearers of an Athenian philosopher than the proselytes of a modern writer), B. attained to the age of eighty-four.—See UTILITARIANISM.

BENTHAMIA, *bĕn-thăm'î-a*: genus of plants of the nat. ord. *Cornaceæ* (q.v.), consisting of Asiatic trees or shrubs, of which the fruit is formed of many small drupes grown together. *B. frugifera*, a native of Nepaul, is a small tree, with lanceolate leaves, and a reddish fruit, not unlike a mulberry, but larger; not unpleasant to the taste. The flowers are fragrant.

BENTINCK, *bĕn'tĭnk*, Lord WILLIAM GEORGE FREDÉRIC CAVENDISH, commonly called Lord George B.: 1802, Feb. 27—1848, Sept. 21; third son of the fourth Duke of Portland; at one time leader of the agricultural protection party. He entered the army when young and attained the rank of major. He subsequently became private sec. to his uncle, the Right Hon. George Canning. Elected in 1826 M.P. for Lynn-Regis, he sat for that borough till his death. At first, attached to no party, he voted for Rom. Cath. emancipation and for the principle of the Reform Bill, but against several of its most important details, and in favor of the celebrated Chandos Clause (q.v.). On the formation of Sir Robert Peel's ministry, 1834, Dec., he and his friend Lord Stanley, afterwards Earl of Derby, with some adherents, formed a separate section in the house of commons. On the resignation of Sir Robert

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Peel in April following, Lord George openly joined the great conservative party, which acknowledged that statesman at its head, and adhered to it for nearly eleven years. When Peel introduced his free trade measures, 1845, a large portion of his supporters joined the protection party then formed, of which Lord George became the head, and a leading speaker in the debates. His speeches in the session of 1845-6 were most damaging to the government of Sir Robert Peel, and contributed in no small degree to hasten its downfall in July of the latter year. Lord George supported the bill for the removal of the Jewish disabilities, and recommended the payment of the Rom. Cath. clergy by the landowners of Ireland. In the sporting world he is understood to have realized very considerable gains, and he showed the utmost zeal at all times to suppress the dishonest practices of the turf. He died suddenly, at Welbeck Abbey, Nottinghamshire. A Life by Benjamin Disraeli appeared 1851.

BENTINCK, Lord WILLIAM HENRY CAVENDISH: 1774, Sept. 14—1839, June 17; second son of the third Duke of Portland, and uncle of Lord William George Frederick Cavendish B: a general officer and statesman. He became an ensign in the Coldstream Guards, 1791. Having served with distinction in Flanders, Italy, and Egypt, he was, 1803, appointed gov. of Madras, where he advocated several useful reforms; but his proscription of beards and the wearing of turbans and earrings by the sepoys when on duty led to the mutiny and massacre of Vellore, and his own immediate recall. After serving with the army in Portugal and Spain, he was sent as British minister to the court of Sicily and commander-in-chief of the British forces in that island. At the head of an expedition, he landed in Catalonia, 1813, July, penetrated to Valencia, and afterwards laid siege to Tarragona, but was repulsed at Villa Franca. Between 1796 and 1826, he held a seat in parliament as member for Camelford, Nottinghamshire, and Ashburton. In 1827, he was appointed gov. gen. of India, and sworn a privy-councilor. His policy in India was pacific and popular, and his viceroyship was marked by the abolition of Sutti (q.v.), and by the opening of the internal communication, as well as the establishment of the overland route. After his return, 1835, he was elected M.P. for Glasgow. He died at Paris.

BENTLEY, *běnt'li*, RICHARD: 1662, Jan. 27—1742; b. Oulton, Yorkshire: distinguished classical scholar. In 1676, he entered St. John's College, Cambridge, in the humble capacity of subsizar. Little is known of his univ. career. On leaving the univ., he was appointed head-master of the grammar-school of Spalding, Lincolnshire. About a year afterwards, he resigned this situation to become tutor to the son of Dr. Stillingfleet, then Dean of St. Paul's, and subsequently Bp. of Worcester. B accompanied his pupil to Oxford, where he had full scope for the cultivation of classical studies; and was twice appointed to deliver the Boyle Lectures on the Evidences of Natural and Revealed Religion.

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He took orders in the church, and owed to the patronage of the Bp. of Worcester various good ecclesiastical appointments, and through the same influence became librarian of the King's Library at St. James's. In 1690. he published his *Dissertation upon the Epistles of Phalaris*, which established his reputation throughout Europe, and may be said to have begun a new era in scholarship. The principles of historical criticism were then unknown, and their first application to establish that the so-called Epistles of Phalaris, which professed to have been written B.C. 6th c., were the forgery of a period some eight centuries later, filled the learned world with astonishment.

In 1700, B. was appointed Master of Trinity College, Cambridge; and in the following year, he married Mrs. Joanna Bernard, the daughter of a Huntingdonshire knight. The history of B.'s mastership of Trinity is the narrative of an unbroken series of quarrels and litigations, provoked by his arrogance and rapacity, for which he was fully as well known during his lifetime as for his learning. He contrived, nevertheless, to get himself appointed regius prof. of divinity, and, by his boldness and perseverance, managed to pass scathless through all his controversies. Notwithstanding that at one time the Bp. of Ely, the visitor of Trinity, pronounced sentence depriving him of his mastership, and that at another the senate of the univ. pronounced a similar sentence of his academic honors, he remained in full possession of both the former and the latter till his death. This stormy life did not impair his literary activity. He edited various classics—among others, the works of Horace—upon which he bestowed vast labor. He is, however, more celebrated for what he proposed than for what he performed. The proposal to print an edition of the Greek New Test. in which the received text should be corrected by a careful comparison with all the existing MSS., was then singularly bold, and evoked violent opposition. He failed in carrying out his proposal: but the principles of criticism which he maintained have since been triumphantly established, and have led to important results in other hands. He is to be regarded as the founder of that school of classical criticism of which Porson afterwards exhibited the chief excellences, as well as the chief defects: and which, though it was itself prevented by too strict attention to minute verbal detail from ever achieving much, yet diligently collected many of the facts which men of wider views are now grouping together, to form the modern science of comparative philology. B. at his death left one son, Richard, who inherited much of his father's taste with none of his energy; and several daughters, one of whom, Joanna, was the mother of Richard Cumberland the dramatist.—*Monk's Life of B* (1830); *Jebb's Bentley* (1882).

BENTON, THOMAS HART; 1782, Mar. 14—1858, Apr. 10, b. near Hillsborough, Orange co., N. C. son of Col. Jesse B., a lawyer, who was private sec. to Gov. Tryon, the last of the royal governors of North Carolina. His mother was a Virginian, of the Gooch family, and the

wife of Henry Clay was his own cousin. While a boy of eight years of age his father died, leaving a large family of young children, of whom Thomas was the eldest. His mother was without much means, and the opportunities for the education of her children were but slight. Thomas studied for a while at a grammar school and also at the Univ. of North Carolina, but without graduating. He left college to go with his mother to Tennessee, where the family settled on a large tract of land, property left by Col. Jesse Benton, 25 m. s. of Nashville. Here the whole family gave their efforts to opening a farm of 3,000 acres; and the settlement, then on the extreme frontier, gradually filled up and was called Bentontown, a name which it still retains.

B. found time to study law, and was admitted to the bar in Nashville, 1811, having for his friend and patron Andrew Jackson, at that time judge of the supreme court of Tennessee. During the war with England, 1812, Mr. B. was one of Gen. Jackson's aides-de-camp and they were warm friends, but a quarrel between his brother, Jesse Benton, and William (afterwards Gen.) Carroll, drew into it both Col. Benton and Gen. Jackson, and, 1813, Sept. 4, a street fight occurred in Nashville, in which Jackson was shot in the left shoulder, and Jesse Benton severely stabbed, while Col. Benton was struck by Jackson with a horse-whip.

In the same year, Col. Benton was appointed lieut. col. in the U. S. army, but held his commission only a short time, peace being declared between England and America. In 1815, he established himself in St. Louis, where he founded the *Missouri Inquirer*, the management of which brought him into conflict with a number of people, and he fought several duels, in one of which he killed his opponent, a Mr. Lucas. His paper made a strong fight for the admission of Missouri as a state, and on that event occurring he was made one of the new senators. From this time forward he was regularly re-elected to the U. S. senate, of which he remained a member 30 years. During this long period Col. B. was active in debate and committee work on all the important questions which occupied the minds of the people and of their representatives and senators, and became recognized as one of the foremost statesman in the country. A man of towering presence, powerful will, broad and vigorous intellect, a thorough student, and possessed of a remarkable memory, he was one of the ablest leaders in the councils of the nation. During the early years of his service as senator he gave much of his time and influence to the advocacy of such land laws as should facilitate the great pioneer movement which was then going on in the west and southwest. During the two administrations of Gen. Jackson, Col. B. was one of his staunchest supporters, and his influence both with the democratic party and with the pres. was felt in its relation to every grave and important public question. Among the subjects to which he devoted himself with the greatest assiduity and earnestness, the proposal of an amendment

to the constitution providing for a direct vote for president by the people was one of the most important. He strove for this with great determination during several sessions, but being opposed by the machine politicians of the day he was unsuccessful. Col. B. opposed the re-chartering of the U. S. bank after its original charter had expired, being a strong advocate of a gold and silver currency, and it was this advocacy which gained for him the soubiquet of 'Old Bullion.' His insight into the possible future of his country, then growing into prosperity and power, was extraordinary, and influenced largely his legislative action. He was one of the prime movers of the Pacific railroad enterprise, and recommended and facilitated the various means for exploration in the far west and for overland traffic. He favored the opening of New Mexico to American trade, and the establishment of military stations on the Missouri and throughout the interior. He recommended and fostered amicable relations with the Indian tribes, and our lake commerce. He was also one of the pioneers in establishing and organizing our post-office system upon the broadest possible basis. The great questions of the Oregon boundary and the annexation of Texas occupied Col. B.'s attention, and during the Mexican war his knowledge of the Spanish provinces made him a most useful assistant to the government. So important were his services and so valuable was his knowledge of the country that it was contemplated by Pres. Polk to offer him the title of lieut.gen. and to place him in command during the war. The exciting compromise acts of 1850 were opposed by Col. B., an opposition which brought him into direct conflict with Mr. Clay, and during the celebrated nullification fight with South Carolina he was the most powerful democratic opponent of John C. Calhoun, the struggle leading to an animosity between these two which lasted during their lives. Col. B. also opposed Mr. Calhoun on the 'Wilmot Proviso' question. He not only fought this question out in the senate, but on the adjournment of congress in 1849 took the stump in Missouri and canvassed the whole state, his speeches becoming famous for their bitterness and sarcasm, as well as the earnestness and force of the arguments on his side of the question, which was the exclusion of slavery from all territory to be subsequently acquired, thus putting himself on record in opposition to the doctrine of state rights. Col. B. retired from the senate after six consecutive sessions, and remained for two years in private life, when in 1852 he announced himself as a candidate for congress and was elected. During his term he supported the administration of Franklin Pierce, and opposed particularly the Kansas-Nebraska bill, which, however, he failed to defeat. Not being returned to congress at the next election he retired from politics for two years, and in 1856 was a candidate for governor of his state, but was defeated. In the presidential election of that year, although his son-in-law, Col. Fremont, was a candidate, Col. B. supported Mr. Buchanan in opposition to him, on the ground that the

election of Fremont would further sectionalism in party warfare.

Col. B., while senator, married Elizabeth, dau. of Col. James McDowell, of Virginia; she experienced a stroke of paralysis 1844, which physically disabled her, and she died 1854, leaving four daughters, the second of whom, Jessie, married Gen. John C. Fremont.

Col. B. devoted the last years of his life to writing his *Thirty Years' View*, and to an *Abridgment of the Debates in Congress from 1789 to 1856*, 15 vols. He was noticeable among other things for total abstinence from tobacco and liquor, also from gambling, giving as his reason that his mother had wished it, and he had determined to adhere to her wishes as long as he lived. After his death a fine bronze statue of him was erected in the public park of St. Louis.

BENUÉ, *ben-ô-e'*, or BINUÉ, *bîn-ô-ă'*, or, as Dr. Barth prefers to spell it, BE'NUWÉ, called also Chadda and Tchadda, from the erroneous supposition that it was connected with Lake Tchad, important river of central Africa, forming the e. branch of the Quorra or Niger, which it joins about 230 m. above the mouth of that river in the Gulf of Guinea. At its junction with the Faro, lat. about 9° 33' n., long. 12° 40' e., the point where Dr. Barth crossed, he describes the B. as being 800 yards across, with a general depth in its channel of 11 ft., and 'a liability to rise under ordinary circumstances at least 30 ft., or even at times 50 ft. higher.' In 1854, an expedition under the command of Dr. Baikie explored the B. as far as Dulti, a place about 350 m. above its confluence with the Niger, and some 80 or 100 m. from where Dr. Barth crossed. Dr. Barth regards this river as offering the best channel for the introduction of civilization into the heart of central Africa, seeing that the tract of land which separates the basins of the B. and the Shari, which flows into Lake Tchad, 'cannot exceed 20 m., consisting of an entirely level flat, and probably of alluvial soil. . . . The level of the Tsad, and that of the river B. near Gewe, where it is joined by the Mayo Kebbi, seem to be almost the same.' In a second expedition, undertaken 1862, Dr. Baikie explored as far n. as Kano, in Haussa. The expedition of the Church Missionary Soc., 1879, explored several unvisited portions, and in 1883 Flegel reached its sources.

BENUMB, v. *bě-nŭm'* [AS. *benæman*; Ger. *benahmen*, to take away, to stupefy]: to deprive of feeling; to make torpid; to stupefy. BENUMB'ING, imp. BENUMBED, pp. *bě-nŭmd'*. BENUMB'NESS, n. the state or condition of being benumbed.

BENYOWSKY, *bā-ne ōv'skē*, MAURICE AUGUSTUS, Count DE: 1741-86, May 23; b. Verbowa, Hungary. He served in the Seven Years' War, studied navigation, and then fought for the Polish Confederation, until he was taken prisoner, 1769. He was banished to Siberia, and thence to Kamtchatka. He was made tutor in the family

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of the governor. Escaping after a struggle in which the governor was killed, B. sailed from Kamtchatka, 1771, and visited Japan, Macao, and France. He was sent to found a French colony in Madagascar, 1774, where some chiefs made him king, and was killed in a conflict with the French govt. of the Isle of France.—See *Memoirs and Travels of B.*, written by Himself (1790).

BENZERTA, *běn-zěr'tǎ*, LAKES OF: the ancient *Hippónitis Palus* and *Sisara Palus*, two lakes within the dominions of Tunis, near the town of Bizerta (q.v.) or Benzerta, 30 m. n.w. of the city of Tunis. They are each about $9\frac{1}{2}$ m. long, and the larger one, which is clear and salt, is about $5\frac{1}{4}$ m. broad; the smaller, which is turbid and fresh, $3\frac{1}{2}$. A channel connects them.

BENZENE. *běn'-zēn*, or BENZOL, *běn'zōl*: compound of carbon and hydrogen (C_6H_6) discovered by Faraday; found among the products of the destructive distillation of a great many organic bodies. See BENZINE. The most abundant source of B. is coal-tar (see GAS: COAL). On distilling coal tar, the more volatile liquid hydrocarbons pass over first mixed with acid and basic compounds, and constitute what is known as light oil or coal naphtha. When the crude naphtha is purified by redistillation and subsequent agitation, first with sulphuric acid, and then with caustic soda, an oil is obtained which consists mainly of B. and its homologues. By submitting this oil to a process of fractional distillation, a portion is obtained, boiling at 176° – 212° , from which B. crystallizes out on cooling the liquid to 32° . The B. is freed by pressure from the substances remaining liquid at this temperature. Commercial B. is always impure. Pure B. is most readily obtained by cautiously distilling a mixture of one part benzoic acid with three parts of slaked lime. The mixture of B. and water which passes over is shaken up with a little potash, the B. decanted, treated with calcium chloride to take up the water, and the dried B. thus obtained is rectified on the water-bath. At ordinary temperatures, B. is a thin, limpid, colorless liquid, evolving a characteristic and pleasant odor. At 32° F., it crystallizes in beautiful fern-like forms, which liquefy at 40° ; and at 177° , it boils, evolving a gas which is very inflammable, burning with a smoky flame. It readily dissolves in alcohol, ether, turpentine, and wood-spirit, but is insoluble in water. It is valuable to the chemist from the great power it possesses of dissolving caoutchouc, gutta-percha, wax, camphor, and fatty substances. Impure B. is thus much used in removing grease-stains from woolen or silken articles of clothing. When heated, B. also dissolves sulphur, phosphorus, and iodine. B., when acted upon by chlorine, nitric acid, etc., gives rise to a very numerous class of compounds belonging to what is known as the aromatic series. The so-called coal-tar colors are all derivatives of B. and the homologous hydrocarbons. See DYE-STUFFS.

BENZINE, *běn'zīn* or *běn-zēn'*: mixture of volatile

BENZOATE—BENZOIC ACID.

hydrocarbons: therein different from *Benzene*; used as solvent of fats, resins, etc.: got by fractional distillation of petroleum; improperly written *Benzene*.

BENZOATE, n. *běn'zō-āt* [said to be from Ar. *benzoah*; Sp. *benjui*. benzoin]: a salt of benzoic acid. **BENZOIN**, n. *běn'zō-in*, a compound obtained from oil of bitter almonds in brilliant prismatic crystals which are inodorous and tasteless—called also by a vulgar corruption *benjamin*; a fragrant resin obtained from a large tree of Sumatra, the *styrax benzoin*. **BENZOIC**, a. *běn-zō'ik*, applied to a fragrant acid obtained from the gum *benzoin*, commonly called *benjamin flowers*, and *flowers of benzoin*. **BENZONITRIL**, n. *běn'zō-nīt'rīl* [*benzoin*, and *nitrile*]: a liquid having the odor of the volatile oil of bitter almonds, obtained by digesting hippuric acid with sand and chloride of zinc. **BENZENE**, n. *běn'zēn*, or **BENZINE**, -*zīn*, or **BENZOL**, *běn'zōl*, a clear, colorless, inflammable liquid, of a disagreeable odor, prepared in immense quantities from coal tar for the manufacture of aniline, and to be used as a solvent for wax, caoutchouc, etc.—as a commercial product it is always impure; when pure, it is known as *benzene*, and is a thin, limpid, colorless liquid, with a peculiar, ethereal odor—known also as one of the aromatic hydrocarbons. **BENZYLE**, n. *běn'zīl*, or **BENZOYLE**, n. *běn'zoyl* [*benzoin*; and Gr. *hyle*, the substance from which anything is made]: an assumed compound forming the radical of oil of bitter almonds, benzoic acid, etc.—that is the benzoic series of ethers. **BENZOLIN**, n. *běn'zō-līn*, same sense as *benzol*.

BENZOIC ACID, *běn-zō'ik*, or **THE FLOWERS OF BENZOIN**: known since the beginning of the 17th c.; occurs naturally in many balsamiferous plants, especially in Benzoin Gum (q.v.), from which it may be readily obtained by several processes. The simplest is as follows: The coarsely powdered resin is gently heated in a shallow iron pot, the mouth of which is closed by a diaphragm of coarse filter paper. Over this is tied a covering of thick paper somewhat like a hat. The porous filter-paper allows the vapors of benzoic acid to pass through it, but keeps back the empyreumatic products. At the end of the operation, the hat-like cover is found lined with a crystalline sublimate of benzoic acid, nearly pure, mixed only with traces of a volatile oil, which gives it a pleasant smell, like vanilla. The benzoic acid thus prepared is the best for pharmaceutical purposes. Benzoic acid is also prepared from the urine of graminivorous animals. The urine is allowed to putrefy, then mixed with milk of lime and filtered. The filtrate, concentrated by evaporation, gives with hydrochloric acid a precipitate of benzoic acid. Benzoic acid thus prepared is cheaper, but always smells of urine. By subliming it with a small quantity of benzoin gum, the pleasant vanilla-like smell may, however, be imparted to it also. Benzoic acid is always in the form of snow-white, glistening, feathery crystals, with a fairy aspect of lightness, having a hot bitter taste. It is readily dissolved by alcohol and ether, but sparingly soluble in water.

BENZOIN.

Benzoic acid is one of the materials present in *Tinctura Opii Camphorata*, and has been administered in chronic bronchial affections; but the benefit derivable from its use in such cases is questionable. Benzoic acid taken into the stomach increases within three or four hours the quantity of hippuric acid in the urine. It forms a numerous class of compounds with the oxides of the metals, lime, etc., called benzoates. The chemical formula for crystallized benzoic acid is C_6H_5COOH . Oil of bitter almonds (hydride of benzoyl) is the aldehyde of benzoic acid (see ALDEHYDES), and the corresponding alcohol, benzoic or benzylic alcohol, is also known.

BENZOIN, *ben'zoyn*, or BEN'JAMIN, or BENZO'IC GUM: a fragrant resinous substance, formed by the drying of the milky juice of the Benzoin or Benjamin Tree (*Styrax*, or *Lithocarpus Benzoin*), a tree of the nat. ord. *Styracaceæ*, and a congener of that which produces STORAX (q.v.), a native of Siam, and of Sumatra and other islands of the Indian Archipelago. The tree grows to nearly two ft. in diameter; the smaller branches are covered with a whitish rusty down; the leaves are oblong, acuminate, and entire, downy and white beneath; the flowers are in compound racemes. B. is exported in reddish-yellow transparent pieces. Different varieties, said to depend upon the age of the trees, are of very different price; the whitest, said to be the produce of the youngest trees, being the best. There is a variety known in commerce as *Amygdaloidal Benzoin*, which contains whitish almond-like tears diffused through its substance, and is said to be the produce of the younger trees. B. is obtained by making longitudinal or oblique incisions in the stem of the tree; the liquid which exudes soon hardens by exposure to the sun and air. B. contains about 10-14 per cent. of Benzoic Acid (q.v.); the remainder of it is resin. B. is used in perfumery, in pastilles, etc., being very fragrant and aromatic, and yielding a pleasant odor when burned. It is therefore much used as incense in the Greek and Rom. Cath. churches. Its tincture is prepared by macerating B. in rectified spirits for seven to fourteen days, and subsequent straining, when the *Compound Tincture of Benjamin*, *Wound Balsam*, *Friar's Balsam*, *Balsam for Cuts*, the *Commander's Balsam* or *Jesuit's Drops*, is obtained. B. is a good antiseptic, and it is to its germicidal properties that it owes its reputation. Previous to the antiseptic era in surgery, it was the custom to saturate the dressings with the tincture of B., the good results following its use being attributed to some mysterious power in it of promoting healing. It is now known that any good effect derived from its use is due to antiseptic action. In the preparation of *Court-plaster*, sarcenet (generally colored black) is brushed over with a solution of isinglass, then a coating of the alcoholic solution of benzoin. The tincture is likewise employed in making up a cosmetic styled *Virgin's Milk*, in the proportion of two drachms of the tincture to one pint of rose-water; and otherwise it is used in the preparation of soaps and washes, to the latter of which it imparts a milk-white color, and a smell resembling that of vanilla. B. possesses stimulant properties, and is

sometimes used as medicine, particularly in chronic pulmonary affections. It may be partaken of most pleasantly when beaten up with mucilage and sugar or yolk of egg. The name *Asa dulcis* (q.v.) has sometimes been given to it, although it is not the substance to which that name seems properly to have belonged. The milky juice of *Terminalia Benzoin*, a tree of the natural order *Combretaceæ*, becomes, on drying, a fragrant resinous substance resembling B., used as incense in the churches of the Mauritius. It was formerly erroneously supposed that B. was the produce of *Benzoin odoriferum*, formerly *Laurus Benzoin*, a deciduous shrub, of the nat. ord. *Lauraceæ*, native of Virginia, about 10–12 ft. high, with large, somewhat wedge-shaped, entire leaves, which still bears in America the name of *Benzoin*, or *Benjamin Tree*, and is also called *Spice-wood* or *Fever-bush*. It has a highly aromatic bark, which is stimulant and tonic, and is much used in North America in intermittent fevers. The berries also are aromatic and stimulant, and are said to have been used in the United States during the war with Britain as a substitute for pimento or allspice. An infusion of the twigs acts as a vermifuge.

BENZONI, *běn-zo'nē*, JEROME: b. Milan, abt. 1520: Italian traveller. After having travelled through Italy, Spain, France, and Germany, he set out for America, 1541, and returned to Europe, 1556, as poor as before his departure, but with a rich store of facts and observations, which he published in a work entitled *History of the New World, Containing the Description of the Islands, Seas, etc.* (Venice, 1565, quarto). It has been translated into French and published at Geneva, 1579.

BENZOYL, *běn'zoyl*: the hypothetical radical C_7H_5O , supposed to exist in benzoic acid and many allied bodies. Thus, benzoic acid is regarded as the hydrate of benzoyl, and the oil of bitter almonds as the hydride of benzoyl, C_7H_5OH . As further examples of this group of bodies, we may mention benzoyl chloride, C_7H_5OCl , and benzoyl cyanide, C_7H_5OCN .—HYDRIDE OF BENZOYL is the volatile or essential oil belonging to the benzoic series. It is represented by the formula C_7H_5OH : see ALMONDS, VOLATILE OIL or ESSENTIAL OIL OF.

BEOLCO, *bā-ol'ko*, or BIOLCO, *be-ol'ko*: 1502–42; b. Padua: Italian dramatic poet. He learned the rustic dialect of his country, studied the manners of the peasantry, and composed, in his native dialect, short dramas which he went to play in the villages with young men of good families. These young men concealed their real names and assumed those of the principal characters which they represented. B. excelled in that of *Il Ruzzante* (the wag), and was so identified with this character, that soon he was commonly known as the *Ruzzante*. His principal comedies are: the *Pievana*, the *Anconitana*, the *Moschetta*, the *Fiorina*, the *Vaccaria*, the *Bodiana*. After Riccoboni, it was he who introduced into the theatre the Venetian buffoon, the Bolognian Doctor, and the harlequin of Bergamo. The works of B. have been published under the title of *Tutte l'opere del famosissimo Ruzzante*, etc.

BEOWULF, *bē-ō'wūlf*: Anglo-Saxon epic poem, one of the greatest literary and philological curiosities, and one of the most remarkable historical monuments in existence. The date of the events described is probably about the middle of the 5th c.; and as the legends refer to the Teutonic races which afterwards peopled England, it is believed that the poem, in its original shape, was brought by the Anglo-Saxons from their original seats on the continent. Only one MS. of the poem is known to exist; that, namely, in the Cottonian Library, which was seriously injured by the fire of 1731. This MS. consists of two portions, written at different times and by different hands, and is manifestly a copy, executed perhaps about the beginning of the 8th c., from an older and far completer version of the poem. But even in the form in which it came from the hands of its last recaster, B. is the oldest monument of considerable size of German national poetry, and notwithstanding the Christian allusions which fix the existing text at a period subsequent to 597, a general heathen character pervades it, which leaves little doubt as to the authentic nature of the pictures which it presents of Teutonic life in ante Christian times. (It should be mentioned that some scholars hold that B. is a translation from a Danish original.) Much learned labor has been bestowed on this strange relic by Sharon Turner; Conybeare; Thorkelin of Copenhagen, who published the entire work, 1815; and by Mr. Kemble, whose edition, pub. by Pickering, 1833, was followed, 1837, by a translation, with glossary, preface, and philological notes.

At first Mr. Kemble was disposed to regard B. as an historical epic, but his view of it latterly came to be, that though to some extent historical, it must be regarded, so far as the legends are concerned, as mainly mythological; and this remark he conceived to apply to the hero not less than to the incidents related. But Beowulf, the god, if such he was, occupies only a small space in the poem, and seems to be introduced chiefly for the purpose of connecting Hrothgar, King of Denmark, whom Beowulf, the hero, comes to deliver from the attacks of the monster Grendel, with Sceaf or Sceaƿ, one of the ancestors of Woden, and the common father of the whole mythical gods and heroes of the north. Sceaf is traditionally reported to have been set afloat as a child on the waters, in a small boat or ark, having a *sheaf* (Ang. Sax. *seeaf*) of corn under his head; whence his name. The child was carried to the shores of Slesvig, and being regarded as a prodigy, was educated and brought up as king. Between Sceaf and Beowulf, Scyld intervened, according to the opening canto of the poem; but when compared with kindred traditions, the whole genealogy becomes involved in extreme obscurity, and Scyld seems sometimes to be identified with Sceaf, and sometimes with Woden. But the view of the connection between Beowulf and Sceaf is strengthened by the following considerations. The old Saxons, and most likely the other conterminal tribes called their harvest month (probably part of Aug. and Sep.) by the name Beo or Beowod, in all probability their god of agriculture or fertility. Whether, or to what extent, this di-

vinity is identical with the mythical hero of the poem, Mr Kemble does not venture to determine, though he indicates a strong leaning to the affirmative.

But in so far as the main points of historical interest are concerned—viz., the date of the legends, and the race and regions to which they belong—the results of the historical and of the mythological view seem nearly the same. The poem falls entirely out of the circle of the Northern Sagas, and probably belongs to Slesvig. All the proper names are Anglo-Saxon in form, but not the slightest mention is made of Britain, the Ongle mentioned being manifestly Angeln (see ANGLES), and not Anglia. From these and many other considerations, the learned editor infers that B. records the mythical beliefs of our forefathers; and in so far as it is historical, commemorates their exploits at a period not far removed in point of time from the coming of Hengest and Horsa, and that in all probability the poem was brought over by some of the Anglo-Saxons who accompanied Cerdic and Cyneric, A.D. 495.

The poem opens with an incident which reminds the reader of one of the most beautiful of Tennyson's earlier poems, the *Mort d'Arthur*, and seems to show a similarity between British and Germanic traditions. It is here given in the simple words of Mr. Kemble's prose translation:

'At *his* appointed time then Scyld departed, very decrepit, to go into the peace of the Lord; they then, his dear comrades, bore him out to the shore of the sea, as he himself requested, the while that *he*, the friend of the Scyldings, the beloved chieftain, had power with *his* words; long he owned it! There upon the beach stood the ringed-prowed *ship*, the vehicle of the noble, shining like ice, and ready to set out. They then laid down the dear prince, the distributor of rings, in the bosom of the ship, the mighty one beside the mast; there was much of treasures, of ornaments, brought from afar. Never heard I of a comelier ship having been adorned with battle-weapons and with war-weeds, with bills and mailed coats. Upon his bosom lay a multitude of treasures which were to depart afar with him, into the possession of the flood. They furnished him not less with offerings, with mighty wealth, than those had done who in the beginning sent him forth in his wretchedness, alone over the waves. Moreover they set up for him a golden ensign, high over head; they let the deep sea bear *him*; they gave *him* to the ocean. Sad was their spirit, mournful *their* mood. Men know not in sooth to say (men wise of counsel, or *any* men under the heavens) who received the freight.'

The following is a brief outline of the story. B. is introduced, preparing for a piratical adventure. After a vivid description of the embarkation of the hero and his 'friendly Scyldingi,' the scene changes, and the palace of Hrothgar rises before us. Here the Danish king has assembled his warriors, and holds a feast unconscious of the deadly peril in which he is placed. The 'scop' ('shaper,' from *scapan* 'to shape' or 'create') sings a poem on the origin of things, and how evil came into the world. This is

deftly used to bring upon the stage the 'grim stranger Grendel, a mighty haunter of the marshes, one that held the moors, fen, and fastness, the dwellings of the monster-race.' Malignant and cruel, he hears with envious hate the sounds of joy echoing from the hall, and stealing into the palace after dark, when the revel is over, he seizes and destroys thirty of the sleeping thegns. In the morning, when the havoc wrought by Grendel becomes known, there is a fierce outcry, and Hrothgar is loudly blamed. Yet twelve winters pass by before the outrage is avenged. The king is continually 'seethed in the sorrow of the time;' but help is at hand. B. has heard of the crimes of the monster, and comes with his Geats (Jutes) to inflict punishment. The voyage over the waves, and the landing of the brave adventurers on the shores of Hrothgar's dominions, is finely told. After some parley with the coast-guards, an interview takes place between the monarch and the hero, who almost pleads to be allowed to deliver the land from the ravages of Grendel. Most tender and pathetic is the passage in which he asks—if fortune should be averse to him ('if Hilda'—i.e. 'the goddess of slaughter'—'should take him away'), that they would not mourn over the 'solitary rover,' but plant a 'simple flower' on his cairn, and send back his 'garments of battle' to his lord and kinsman, Higelac. The inevitable feast follows, in the course of which the 'scop' sings of the peace that is to be, and B. enlarges upon his past exploits. Then we have an exquisite picture of the Danish queen: 'There was laughter of heroes, the noise was modulated, words were winsome; Wealtheow, Hrothgar's queen, went forth; mindful of their races, she, hung round with gold, greeted the men in the hall; and the freeborn lady gave the cup first to the prince of the East Danes; she bade him be blithe at the service of beer, dear to his people. He, the king, proud of victory, joyfully received the feast and hall-cup. The lady of the Helmings then went round about every part of young and old; she gave treasure-vessels, until the opportunity occurred, that she, a queen hung round with rings, venerable of mood, bore forth the mead-cup to Beowulf. Wise of words, she greeted the Geat, she thanked God because her will was accomplished, that she believed in any earl, *as* a consolation against the crimes.' That night, when the shadows of darkness have fallen, Grendel comes swiftly to the palace from the misty moors, and assails Beowulf. A fierce struggle ensues, but the monster is baffled, and obliged to flee. Next day a second feast is held in honor of the hero's success, magnificent gifts are showered upon him by the grateful Hrothgar, the services of the 'scop' are again called into request, music and sports follow, and the queen once more moves through the crowd of warriors with courtesy and grace. The night, however, is not to pass without its tragedy. The mother of the monster secretly enters, and destroys one of the king's dearest thegns. B., in a magnanimous speech, undertakes to avenge him. Having sought the wild haunts of the 'hateful one,' he first slays the mother after a furi-

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cus combat, in which he would have been vanquished but for the apparition of a magic sword 'over the waves,' which came into his grasp. Grendel is then destroyed, and his head carried off as a present to Hrothgar. B. then returns home, and after a variety of other but less interesting adventures, succeeds to the throne on the death of his kinsman Higelac.

More recent editions than those above noted are that by Heyne (1863, 4th ed. 1879), Arnold (1876), Grein (Göttingen, 1867), and Holder (Freiburg, 1884). Wackerbart (1849), Thorpe (1855), and Lumsden (1881), the latter in ballad metre, have given English metrical translations. There are several German versions.

BÉPUR, or **BEYPORE**: seaport of w. India, 6 m. s. of Calicut. Its situation is very beautiful. It has considerable trade in timber, particularly teak, which is floated down the river for exportation. Iron ore is in the neighborhood, and iron-works have recently been established. B. is the terminus of a railway across the peninsula of India from Madras by way of Coimbatore, and will probably become a place of great importance. Pop. about 8,000.

BEQUEATH, *v.* *bě-kwēth'* [AS. *becwathan*—from *be*, and *cwathan*, to say]: to give or leave by will; to hand down to posterity. **BEQUEATHING**, *imp.* **BEQUEATHED**, *pp.* *bě-kwēthd'*. **BEQUEST**, *n.* *bě-kwēst'*, something left by will; a legacy. **BEQUEATHFR**, *n.* one who bequeathes. **BEQUEATHMENT**, *n.* the act of bequeathing; the state of being bequeathed; that which is bequeathed; a legacy. See **WILL**: **LEGACY**: **DISPOSITION** (*Mortis causá*): **SETTLEMENT**: **REAL**: **PERSONALTY**.—**SYN.** of 'bequeath': to devise; demise; transmit. In strict usage 'bequeath' applies rather to personal property, 'devise' to real estate (lands, buildings, etc.): yet the two are used often as synonyms.

BERAIN, *v.* *bě-rān'* [*be*, and *rain*]: in *OE.*, to rain upon; to wet.

BÉRANGER, *bā-ron-zhā'*, **PIERRE-JEAN DE**: 1780, Aug. 19—1857, July 17; b. Paris, in the house of his grandfather, a tailor in the Rue Montorgueil, to whose care he was left entirely by his father, a scheming and not over-scrupulous financier. After living some time with an aunt at Péronne, to whom he appears to have been indebted for those republican principles which afterwards made him obnoxious to successive French governments, B., at the age of fourteen, was apprenticed to a printer in that place, where he remained three years, devoting all his leisure to the acquirement of knowledge. He now returned to Paris, where his father, a zealous royalist, was engaged in some questionable schemes of money-getting, which were mixed with conspiracy. B. assisted him in his money affairs, so far as he honorably could, and kept his political secrets; but he did not disguise his contempt for the royalist cause, nor fail to express his opposite sympathies. The business, however, was not one to the taste of B., who was throughout the

whole of his life a man of the most sensitive honor, and he soon left it. He had ere this begun to write, but his poems were not successful, and reduced almost to destitution, he, 1804, enclosed some of his verses to M. Lucien Bonaparte, with a letter explaining his circumstances, and with a request for assistance—the one solitary instance of solicitation during a long life of independence, marked by the refusal of numerous offers of lucrative patronage. M. Bonaparte obtained employment for the poet, first as editor of the *Annales du Musée*, afterwards as a subordinate sec. in the univ.; a post which he held for twelve years, when the government, provoked at his satire, and alarmed at his popularity, dismissed him. During the ‘Hundred Days,’ Napoleon offered B. the remunerative post of censor—a singular office for such a man. He refused it. But though he scorned to accept favor from or to flatter Napoleon, at a time when it was alike fashionable and profitable to do so, he was of much too noble a nature to join in the sneers and reproaches which greeted the hero on his fall. Above the fear of power, he was incapable of taking advantage of misfortune. In 1815, B. published his first collection of songs, which soon attained very wide popularity. In 1821, he published another collection, followed by some fugitive pieces, which subjected him to a government prosecution, a sentence of three months’ imprisonment, and a fine of 500 francs. In 1825, a third collection, and in 1828, a fourth appeared, still more withering in its sarcasm on those in power; and the penalty of B’s outspokenness was a fine of 10,000 francs, and nine months’ confinement in La Force. The fine was soon paid by the poet’s friends, and his prison became the resort of the most eminent men in the kingdom, and a very armory in which he forged those keen-piercing bolts which galled so terribly, and contributed so much to the overthrow of the Bourbons. But B. refused to profit by the new state of things he had been instrumental in bringing about. Rejecting the emoluments and honor which his friends, now in power, were anxious to bestow, he retired to live in privacy at Passy. In 1833, he published a fifth collection of songs, when he took a formal leave of the public, and until his death, twenty-four years afterwards, he remained silent. In 1848, B. was elected a member of the Assemblée Constituante by more than 200,000 votes; but after taking his seat to show his appreciation of the honor conferred on him, he almost immediately resigned. He consistently rejected all the offered favors of the late emperor, as well as a graceful overture on the part of the empress, which he owned it cost him much to refuse. B. died at Paris, and the cost of his funeral was defrayed by the French government, and his remains were attended to the grave by the most distinguished men in all departments of literature. B. was as emphatically the poet of the French people as Burns was the bard of the Scottish peasantry. The same stanch and fearless independence, genuine manliness, sound common sense, and contempt for everything mean and hypocritical, characterized both men; and as poets, they differ in excellence only

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as the sentiments of the French and Scottish people differ in their capacity to be turned into song. 'Neither friend nor enemy has as yet disclosed to us any speck on the heart, the honor, the genius, or the good sense of Béranger.' Since his death his *Last Songs*, written 1834-51, have been published, and also *My Biography* (Paris, M. Perrotin; London, Jeffs). See *My Biography; Memoirs of Béranger*, by M. Lapointe; and *Béranger et son Temps*, by Jules Janin, (1866).

BERAR, *bā-rār'*: valley, locally in the Nizam's territories, but annexed politically to British India, for the maintenance of what is called the Nizam's Contingent. It is bounded on the n. by a detached portion of Scindia's dominions and the Nerbudda provinces; on the e. by Nag-poor; on the w., by Candeish; on the s., by two of the Nizam's remaining districts—Maiker Bassim and Mahur. It lies between 20° 15' and 21° 40' n. lat., and between 76° and 78° 2' e. long.; 17,711 sq. m. It is traversed in its length by the Poornah—itself a tributary of the Taptee—which, with its numerous affluents, affords an ample supply of water to the valley, and, for other reasons, is peculiarly suitable to the cultivation of cotton. The transfer in 1853 from the Nizam to the British has proved favorable to this production; about 25 per cent. of the area is devoted to cotton. In the e. part there is a coal-field of 40 sq. m., and at Akolah, in Purana, there are salt wells. Ellichpore is the chief town, but is smaller than Oomrawutti (q.v.). Pop. (1901) 2,752,418.

BERAT, *bër-át'*: town of Albania, Turkey, vilayet of Janina, about 30 m. n.e. of the seaport of Avlona; in a fertile valley which produces much grain, oil, and wine. Pop., of which two-thirds are Greeks, abt. 12,000.

BERATE, v.: to rate much; to scold.

BERATTLE, v. *bě-răt'tl* [*be*, with, and *rattle*]: in *OE.*, to fill with noise; to make a great noise in contempt.

BERAY, v. *bě-rā'* [*AS.* *be*, about: *OF.* *ray*, dirt: *Fin.* *roju*, dung]: in *OE.*, to soil with ashes; to dirt; to defile. BERAY'ING, imp. BERAYED, pp. *bě-rād'*.

BERBER, n. a. *běr'běr*, a name used to designate the Semitic language formerly spoken in northern Africa or Barbary—now pushed back, with its various dialects, towards the interior.

BERBER, *běr'běr*, or DAR BERBER (also El Mekheir, or Mersherif): town on the right bank of the Nile, below the confluence of the Atbara; a station on the route from Khartoum to Cairo, and a point to which caravans come from Suakim on the Red Sea. It has been proposed to make a railway from Suakim to Berber. Pop. about 8,000.

BERBERA, *běr'běr-a*: seaport of Somali, e. Africa, with a good harbor, on a bay of the Gulf of Aden. It was seized by England 1884. It is scarcely a permanent town, but the scene of a large annual fair, which brings over 30,000 people together from all quarters in the

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East. Coffee, grains, ghee, gold-dust, ivory, gums, cattle, ostrich-feathers, slaves, etc., are brought hither from the interior on camels, sometimes numbering 2,000 or 3,000, and exchanged for cotton, rice, iron, Indian piece-goods, etc. As soon as the fair—which usually extends from Nov. to Apr.—is over, the huts are carefully taken down, and packed up, and little remains to mark the site of the town but the bones of animals slaughtered for food during the continuance of the fair.

BERBERIDÆ, or **BERBERIDACEÆ**, *bër-bër-ĭ-dā'sē-ē*: a nat. ord. of exogenous plants, of which the different species of Barberry (q.v.) afford the best known examples. Many of the plants of this order are spiny shrubs; some are perennial herbaceous plants. Their leaves are alternate, their flowers sometimes solitary, sometimes in racemes or panicles. The calyx consists of 3, 4, or 6 deciduous sepals; the corolla, which arises from beneath the germen, consists of petals equal in number to the sepals, and opposite to them, or twice as many; the stamens are equal in number to the petals and opposite to them; the anthers are 2-celled, each cell opening curiously by a valve which curves back from bottom to top; the carpel is solitary and 1-celled; the fruit is either a berry or a capsule. This order, nearly allied to *Vitaceæ* (q.v.), (Vines, etc.), contains more than 100 known species, chiefly belonging to the temperate parts of the n. hemisphere, and of S. America.

BERBERINE, n. *bër'bër-ĭn* [L. *berbēris*, the berberry—from Ar. *berbēri*, wild]: alkaloidal substance in the form of needle-like crystals of a beautiful bright yellow, obtained from the root of the berberry shrub. **BERBERRY**, n. *bër'-bër-ĭ*, the correct spelling of **BARBERRY**, a tree whose fruit is used as a preserve, and contains *oxalic acid*; the *Berbēris vulgāris*, ord. *Ber'beridācēæ*.

BERBERS, *bër'bērz*: general name usually given to the tribes inhabiting the mountainous regions of Barbary and the n. portions of the Great Desert. It is derived, according to Barth, either from the name of their supposed ancestor, *Ber*, which we recognize in the Lat. *A-fer*, an African (see letter B); or from the Greek and Roman term *Barbari*. The name by which they call themselves, and which was known to the Greeks and Romans, is *Amāzigh*, or *Mazigh*, *Mazys*, *Amoshagh*, *Imoshagh*, etc., according to locality, and whether singular or plural. These tribes have a common origin, and are descendants of the aboriginal inhabitants of n. Africa. They appear to have been originally a branch of the Semitic stock; and although they have been conquered in succession by the Phœnicians, Romans, Vandals, and Arabs, and have become, in consequence, to some extent, a mixed race, they still retain, in great part, their distinctive peculiarities. Till the 11th c. the B. seem to have formed the larger portion of the population inhabiting the s. coast of the Mediterranean, from Egypt to the Atlantic Ocean; but, on the great Arab immigrations which then took place, they were driven to the Atlas Mountains, and to the desert regions

BERBICE.

where they now live. In Tripoli, the allegiance that they pay to the Turks is little more than nominal; in Algeria, where they are usually termed Kabyles, they were long conquered by the French; and in Moroeo, where they are called 'Shellooh,' they are only in form subject to the emperor. The B. occupying the desert, who are called Tuarie, or 'Tawarek, by the Arabs, have become much mixed with the negro race. The number of the B. is estimated at between three and four millions. They are of middle stature, sparely but strongly built. The complexion varies from a red to a yellow brown, and the shape of the head and of the features has more of the European than the oriental type. The hair is, in general, dark, and the beard small. The eyes are dark and piercing. Their manners are austere, and in disposition they are cruel, suspicious, and implacable. They are usually at war, either with their neighbors or among themselves; are impatient of restraint; and possessed of a rude, wild spirit of independenee, which makes it impossible for them to unite for any common purpose, or to make the advances in civilization which might be expected from their high physical organization. They live in clay-huts and tents; but, in their larger villages, they have stone houses. They have herds of sheep and cattle, and practise agriculture, and are especially fond of the cultivation of fruit-trees. They possess water-mills and oil-presses. The mines of iron and lead in the Atlas are wrought by them, and they manufacture rude agricultural implements, and swords, guns, and gunpowder. They formerly professed the Christian religion; but since the Arabs drove them from the fertile plains between the mountains and the sea, they appear to have retrograded in every way, and they are now among the most bigoted adherents of the religion of Mohammed; although their former creed has left a few traces, as in the names *Mesi* for God, and *angelus* for angel, and many curious customs still observed among them. See Barth's *Africa*, vol. i.

BERBICE, *bér-bēs'*: eastern division of British Guiana, bounded w. by Demerara; n. by the Atlantic; e. by Dutch Guiana or Surinam; s. by the basin of the Amazon, or rather, perhaps, the upper waters of the Surinam and Corentyn. In 1796, Berbice, Demerara, and Essequibo were surrendered to the British under Maj.gen. Whyte, but were soon restored to the Dutch at the peace of Amiens, and recaptured 1803. B. stretches in long. between $55^{\circ} 40'$ – $57^{\circ} 20'$ w.; in lat. s. from $6^{\circ} 30'$ n. It is subdivided into six parishes, four of which belong ecclesiastically to the Scotch National Church, and two to the Episcopalian. The principal products are sugar, coffee, cocoa, and tropic fruits. Cotton has nearly ceased to be grown. The forests abound with splendid timber trees, including the mora, bullet-tree, and cedar. The Berbice river, though not the largest in British Guiana, is navigable to the greatest distance from the sea. The Essequibo discharges a greater volume of water, but is interrupted by rapids within 50 m. of the coast, while the Berbice admits

BERCETO—BERCHTESGADEN.

a draught of 12 ft. for 100 m., and one of 7 ft. for 60 more, the influence of the tide reaching nearly the whole way. Even as far as lat. $3^{\circ} 55'$ n., 175 m. in a straight line from its outlet, it has been found to have a width of 100 ft. with a depth of from 8 to 10. An important affluent is the Canje, on the banks of which a number of the most important plantations are situated. New Amsterdam, on the right bank of the Berbice river (pop. 7,000), is the chief town and port of the district. Pop. of B. 32,000, of whom nearly 4,000 white and of mixed race.

BERCETO, *běr-chā'to*: town of Italy, in the province and 25 m. s.w. from the city of Parma, beautifully situated among the Apennines. It is a clean, well-built town. The church is an old Gothic building. The mountains rise rapidly to the west of B., and some of the scenery which they present is very wild and desolate.

BERCHE'MIA: see SUPPLE JACK.

BERCH'TA (in Old German, Peracta, and the original form of the name Bertha, being from the same root as the English word *bright*, and meaning 'shining,' 'white'): in the mythology of the south of Germany and in Switzerland, a spiritual being, who was apparently the same as the Hulda (gracious, benign) of northern Germany. This being represented originally one of the kindly and benign aspects of the unseen powers; and so the traditions of Hulda (q.v.) in the n. continued to represent her. But the B. of the s., in the course of time, became rather an object of terror, and a bugbear to frighten children; the difference probably arising from the circumstance, that the influence of Christianity in converting the pagan deities into demons was sooner felt in the s. than in the n. Lady B. has the oversight of spinners. The last day of the year is sacred to her, and if she find any flax left on the distaff that day, she spoils it. Her festival is kept with a prescribed kind of meagre fare—oatmeal-gruel, or pottage, and fish. If she catches any persons eating other food on that day, she cuts them up, fills their paunch with chopped straw and other such agreeable stuffing, and then sews up the wound with a ploughshare for a needle, and an iron chain for a thread. In some places, she is the queen of the crickets. She is represented as having a long iron nose and an immensely large foot. That she was once an object of worship, is testified by the numerous springs, etc., that bear her name in Salzburg and elsewhere. It is likely that many of the Sagas of B. were transferred to the famous Berthas (q.v.) of history and fable. The numerous stories of the 'White Lady' who appears in noble houses at night, rocks and nurses the children while the nurses are asleep, and acts as the guardian angel of the race, have doubtless their root in the ancient heathen goddess Berchta.

BERCHTESGADEN, *běrk'tēs-gǎ-dèn*: village of Bavaria, charmingly situated on a mountain slope, about 15 m. s. of Salzburg. It has a royal hunting-lodge, but the place is most remarkable for its government salt-mines, from which 150,000 cwt. of rock-salt is annually obtained.

BERCY—BERENGARIUS OF TOURS.

During the residence of the court, the mine is sometimes illuminated, and its chambers are then seen to great advantage. Pop. (1885) 1,901; (1890) 2,300.

BERCY, *bér-sê:* town of France, dept. of the Seine, on the right bank of the river Seine. B. forms a suburb of Paris, and its population is reckoned as a portion of that of the capital. It has a large business in wines and other liquors.

BERDAN, **HIRAM**: inventor: about 1823–1893, Mar. 31; b. near Rochester, N. Y. He studied for a time at Hobart Coll., but his mind was interested in practical mechanics, and he entered a machine-shop in Rochester while a lad, on his own urgent request. Before he was of age he formulated the idea which resulted in the reaping-machine, and had made many other novel inventions or adaptations. He became interested in firearms and projectiles when the civil war broke out, and invented the ordinary metal cartridge still in use, besides the long-range rifle known by his name. B. was made col. and brev. brig.gen. during the war, and commanded a body of U. S. sharpshooters. He was promoted to maj.gen. of vols. for gallantry at the battle of Gettysburg.

BERDIANSK, *bér-dé-ănsk'*: well-built seaport town of southern Russia, govt. of Taurida, on the n. coast of the Sea of Azov. B. has the finest roads in the Sea of Azov, and is a place of commercial activity, being the entrepôt for the products of surrounding governments. It trades in fish, wood, hides, tallow, grain, coal, and salt; there are extensive coal-mines and salt-lakes in its vicinity. Pop. (1880) 18,180; (1892) 23,593.

BERDITCHEV, *běr-dé-chěv'*: town of Russia, govt. of Kiev, famous for its five annual fairs. At these, cattle, corn, wine, honey, leather, etc., are disposed of. The average annual value of the sales is \$3,000,000. Pop. (1880) 56,980, chiefly Jews; (1889) 78,287.

BERE, n. *běr* [AS. *bore*; Icel. *barr*; Meso-Goth. *baris*; L. *bar*, barley]: a variety of barley; bigg or barley-bigg.

BEREAVE, v. *bě-rěv'* [AS. *bereafian*, to deprive of: *be*, and *reave*, which see]: to deprive of; to take from; to render destitute. **BEREAV'ING**, imp. **BEREFT**, pp. *bě-rěft'*, or **BEREAVED**, pp. *bě-rěvd'*. **BEREAV'ER**, n. one who. **BEREAVEMENT**, n. *bě-rěv'měnt*, a heavy loss, particularly of friends, by death.

BEREFT. pp. of **BEREAVE**, which see.

BERENGARIANS, *běr-ěn-gā'rĭ-anz*: the followers of Berengarius. Some held consubstantiation, but others anticipated the Zwinglian doctrine that the communion elements were only symbols and signs of the body and blood of Christ, and not that body and blood themselves.

BERENGARIUS OF TOURS *běr-en-gā'rĭ-us*: 998–1088; b. Tours, France; distinguished scholastic theologian. His master, Fulbert of Chartres, is reported to have prophesied on his death-bed that B. would prove a dangerous man. In 1030 he was appointed preceptor of the school of St. Martin, in Tours, and 1040 made Arch-

deacon of Angers. Here he continued to deliver his metaphysico-theological prelections, and drew upon himself the charge of heresy, in reference to the doctrine of transubstantiation. He held the doctrine of Scotus Erigena, that the bread and wine in the sacrament of the eucharist remained bread and wine, and that the faith of the believer who recognized their symbolic meaning only transformed them subjectively into the body and blood of Christ. This interpretation was condemned by Pope Leo IX., 1049-50, and also by King Henry I. of France. In 1054, he retracted his opinion before the Council of Tours, but what B. meant by 'retractation' is not evident, for he immediately returned to his conviction, and recommenced the advocacy of it. For this he was cited to appear at Rome, where he repeatedly abjured his 'error,' but never seems to have really abandoned it. Hildebrand then pope, treated him with great moderation; and at last, when he discovered how hopeless it was to bind down B. by abjurations or declarations, he conceived it best to let him alone. Harassed and weakened by the attacks of the orthodox party headed by Lanfranc of Canterbury, he finally retired to the isle of St. Cosmas, near Tours, 1080, where he spent the last years of his life in devotional exercises. The greater number of his works are lost; such as are extant have been collected and published by the Vischers (Berlin, 1834).

BERENGELLITE, *n.* *běr-ěng'gěl-īt* [from *St. Berengēlā* in Peru, S Amer., where found abundantly; Gr. *lithos*, a stone]: an asphaltum-like mineral, of a dark-brown color with a green tinge, having a disagreeable odor and bitter taste.

BERENGER, *běr'ěn-jěr*, I. King of Italy: 9th c.; son of Eberhard, Duke of Friuli, and of Gisela, dau. of the emperor Louis the Pious. He and Guido, Duke of Spoleto, were the two most powerful and ambitious nobles then in Italy. After the deposition of Charles the Fat, 887, B., Guido, and Adalbert, Count of Tuscany, became candidates for the Carolingian throne. B. was crowned king of Italy at Pavia, 888, while Guido attempted to secure the realm of France. The former soon irritated the nobles against him by condescending to hold his territory in fief from Arnulf, King of Germany. against whom he found it vain to maintain his independence; and when Guido returned from his unsuccessful expedition to France; he was persuaded to put himself in opposition to B., and was chosen king of Italy. With the help of Arnulf, however, B. ultimately prevailed. After the death of Guido, 894, his son Lambert compelled B. to share with him the sovereignty of n. Italy; but, on the assassination of Lambert, 898, B. contrived to obtain possession of the whole of Lombardy. His influence quickly sank. He could check neither the plundering incursions of the Hungarians across the Alps in the n., nor those of the Arabs, who laid waste the shores of the s. The nobles now called in Louis, King of Lower Burgundy, who was crowned at Rome, 901; but

BERENGER II.—BERENICÉ.

he proved no better, and was finally overpowered by Berenger. In 915 B. was crowned emperor by Pope John X.; but the nobles, who appear to have kept themselves during his reign in a state of chronic disaffection, again revolted, and, 919, placed themselves under the banner of Rodolf of Burgundy, who completely overthrew B., 923, Jul. 29. The latter, in his extremity, called in the Hungarians to his aid, which unpatriotic act alienated the minds of all Italians from him, and cost him his life, for he was assassinated in the following year.

BERENGER II., King of Italy: (d. 966); son of Adalbert, Count of Ivrea, and grandson of Berenger I., succeeded to his father's possessions 925, and married Willa, niece of Hugo, King of Italy, 934. Incited by his ambitious and unscrupulous wife, he conspired against Hugo, and in consequence was compelled to flee to Germany, where he was received in a friendly manner by the emperor Otto I. In 945, he recrossed the Alps at the head of an army. The nobles and the townspeople both welcomed him; but, instead of assuming the crown himself he handed it over to the weak Lothaire, the son of Hugo. On the death of Lothaire, who was probably poisoned by Willa, B. allowed himself to be crowned along with his son Adalbert, 950. To establish himself firmly in his new position, he wanted Adelheid, the youthful widow of Lothaire, to marry his son. She refused, and was subjected to a most cruel imprisonment, but ultimately found a helper and husband in the emperor Otto himself, who, at the imperial diet of Augsburg, 952, compelled B. to acknowledge Italy a fief of the German empire. B. soon afterwards engaged in war with the emperor, who sent his son Ludolf against him. Ludolf was successful, but died 957, of poison administered, as was believed, by Willa. B. again mounted the throne, but behaved with such intolerable tyranny that his subjects and Pope John XII. called in the aid of the emperor, who marched into Italy 961, and took possession of the country. B. took refuge in a mountain fortress, where he held out till 964, when hunger compelled him to capitulate. He was sent as a prisoner to Bamberg, in Bavaria, where he died. His wife, Willa, retired into a convent, and his three sons died in exile.

BERENICE (modern name, Sakáyt-el-Kublee, 'Southern Sakáyt'): town of Egypt, on a bay in the Red Sea, 20 m. s.w. of Ras Benass. It was founded by Ptolemy Philadelphus, and was in ancient times the emporium of the trade with India, but it is now ruined, and interesting only for its antiquities, which include hieroglyphics, sculptures, and a temple dedicated to Serapis. There are emerald mines in its vicinity that have been worked since the time of the ancient Egyptians.

BERENICE, *bér-ê-nî'se*: the name of several celebrated women of ancient times.

BERENICE, dau. of Lagus and Antigone, and second wife of the Egyptian king, Ptolemy I. (Soter); (B.C. 323—284). She is described by Plutarch as the first in virtue and wis-

BERESFORD.

dom of the wives of Ptolemy. Theocritus celebrates her beauty, virtue, and deification in his *Idyls*, 15 and 17.

BERENICE, dau. of Ptolemy II. (Philadelphus) and Arsinoë; married to Antiochus II. of Syria, after he had divorced his wife Laodice, whom, however, he took back, putting B. away. Laodice, having no faith in her husband, poisoned him, and caused B. and her son to be murdered.

BERENICE, dau. of Magas, King of Cyrene, granddaughter of B. No. 1, was to have been married to Demetrius the Fair, but he having slighted her for her mother, she caused him to be murdered, and then went to Egypt and married Ptolemy III. (Euergetes), in accordance with the terms of a treaty between her father and Ptolemy II. During the king's wars in Asia, the Queen B. made a vow to offer her beautiful hair to the gods when her husband returned safely—a vow which she fulfilled. The hair was suspended in the temple of Venus, whence, it is said, it was taken away to form a constellation, *Coma Berenices*. B. was put to death by her son, Ptolemy IV. (Philopator), when he succeeded to the throne.

BERENICE, also called Cleopatra, dau. of Ptolemy IX. (Lathyrus), was, on her succession to the throne, married to Alexander II., by whom she was murdered 19 days after marriage.

BERENICE, dau. of Ptolemy XI. (Auletes), eldest sister of the renowned Cleopatra, was raised to the throne after her father's deposition, B.C. 58, but was put to death when her father was restored, B.C. 55. She was first married to Seleucus, whom she caused to be poisoned, and afterwards to Archelaus, who was put to death with her.

BERESFORD, LORD CHARLES WILLIAM DE LA POER: English naval officer; b. 1846, Feb. 10; entered the navy 1857; became rear-admiral 1897. He accompanied the Prince of Wales (Edward VII.) to India 1875-76, as naval aide-de-camp, and held the same relation to Queen Victoria 1896-97. In 1882, after the bombardment of Alexandria, during which he commanded the *Condor*, he organized a police system for the city. In 1898 the Associated Chambers of Commerce of Great Britain sent him to China to examine the complicated commercial conditions prevailing there, and on his return, in 1899, he passed through the U. S., and was received with distinguished honors by official and commercial bodies. He has done much to promote the "open door" commercial policy in China.

BERESFORD, *bēr'ès-ford*, WILLIAM CARR, Viscount 1768, Oct. 2—1854, Jan. 8; nat. son of the first Marquis of Waterford. distinguished military commander. He entered the army, 1785; served in various parts of the world: was conspicuous in the reconquest of the Cape of Good Hope, 1806 and with the rank of brig. gen., was with the British force that took possession of Buenos Ayres. In 1808, Aug., he joined the British army in Portugal, and proceeded into Spain with Sir John Moore's force was present at the battle of Corunna and after covering the embarkation of the troops, returned with them to England.

BERESINA.

In 1809, Feb. Maj.gen. B was ordered a second time to Portugal, to take the command of the Portuguese army, with the local rank of lieut.gen. Appointed Marshal of Portugal in March, at the head of 12,000 men he attacked the French in the n. of that kingdom, crossed the river Douro, drove Loison's division back to Amarante, and uniting with the force under Sir. Arthur Wellesley, pursued it in its retreat till it was utterly disorganized. For his services at the battle of Busaco, 1810, Aug. 27, B. was nominated a Knight of the Bath. He commanded at the bloody battle of Albuera, 1811, May 16; and for the victory there gained over Soult, he received the thanks of parliament. He was present at Badajoz; at Salamanca, where he was severely wounded; at the various battles on the Pyrenees; at Nivelles, where he led the right of the centre; at Nive; and at Orthez. He was in command of the British troops which took possession of Bordeaux, and subsequently distinguished himself at the battle of Toulouse. In 1814, May, he was created Baron, and in 1823 Viscount Beresford. By the Portuguese government, he was sent, 1814, to Rio Janeiro, to suppress a formidable revolt there. In the Wellington administration, 1828, Jan-1830, Nov., he was master-gen. of the ordnance. He bore the title of Marquis of Campo Mayor and Duke of Elvas in Spain, Conde de Francoso in Portugal, and was knight of several foreign orders. He died without issue, and the title became extinct.

BERESINA, or BEREZINA, *běr-é-zě'ná*: river of Russia, having its rise in the n. of the govt. of Minsk. It flows s. for about 240 m. to the Dnieper, which it joins above Redchitzka. It is connected with the Dūna, or Dwina, by a canal, a communication between the Black and Baltic seas being thus established. The B. is memorable on account of the disastrous passage of the French army, 1812, Nov., during the retreat from Moscow. Two bridges over the B.—one for troops, the other for baggage and artillery—were hastily constructed. Many of the *pontoniers* died from the hardships endured in making these bridges. On the 27th, the passage of the French commenced, and was continued during the whole of the day. Victor's rear-guard of 7,000 men, under Partonneaux, were, however, intercepted by the Russians, and had to capitulate. On the 28th, a vigorous attack was made by the Russians on the French on both sides of the river, but too late to prevent the latter securing the road to Zembin. The Russians, however, established a battery of twelve pieces to command the bridge; and the panic and confusion of their enemies now became dreadful. The artillery bridge broke, and all rushing to the other, it was soon choked; multitudes were forced into the stream, while the Russian cannon played on the struggling mass. On the 29th, a considerable number of sick and wounded soldiers, women, children, and sutlers, still remained behind, despite the warnings of Marshal Victor and General Eblé, until preparations were made for burning the bridges. Then a fearful rush took place; and as the fire seized the timbers, men, women, and children threw them-

selves in desperation into the flames or the river. 12,000 dead bodies found on the shores of the river, when the ice thawed, attested the magnitude of the French disaster. The Russians took 16,000 prisoners and 25 pieces of cannon.

BERETTYO-UJFALU, *bā-ret'yo-ó-ē-fá'ló*: market-town of Hungary, county Bihar. Pop. (1880) 6,122.

BEREZNA, *bā-rěz'ná*: town of Russia, govt. of Tchernigov, on the Desna. Pop. (1880) 10,827.

BEREZOV, or BERESOFF, *bēr-ez-of'* ('the town of birch-trees'): town of Siberia in the govt. of Tobolsk, on the left bank of the Sosva, a branch of the Obi, in lat. 63° 30' n. It is a small place, but important as the sole fur and skin trading station in a vast extent of country. Its annual fair is largely attended. It is the favorite residence of the Ostiaks and Voguls. Prince Menschikoff, the favorite of Peter the Great, who was banished to B., died and was buried here 1731. His grave was opened 90 years afterwards, when his body, clothed in the uniform of the time, was found as free from decay as on the day it was buried, the frost, which at B. penetrates the soil to the depth of several feet, having preserved it. Pop. (1892) 2,000.

BERG, or BURG, or BURGH: roots entering into the composition of many names of places. *Berg* (Ger.), *Beorg* (Ang.-Sax.), means 'hill,' 'mountain;' and *burg*, or *burgh*, means 'fort,' 'castle,' 'citadel,' probably from being situated on a hill or eminence. See BOROUGH: BURGH.

BERG, n. *berg* [Sw. *berg*; AS. *beorh*, a mountain]: a hill, generally of ice; a contr. of ICEBERG, which see. BERGMAHL, or -MEHL, *berg-māl'* [Sw. mountain-meal]: a recent infusorial earth of a whitish color and mealy grain, also called *fossil farina*, common in bog and ancient lake deposits. It is a powder of extreme fineness, composed almost entirely of the indestructible silicious frustules or cell-walls of *Diatomaceæ* (q.v.). From its resemblance to flour, it has been mixed with ordinary food, in seasons of scarcity, and thus used by the inhabitants of Norway and Sweden, who suppose it to be nutritious. When subjected to a red heat, it loses from a quarter to a third of its weight, the loss consisting probably of organic matter, and this would make it in itself nutritious; but it seems to derive its chief value from its increasing the bulk of the food, thereby rendering the really nutritious portion more satisfying. There have been experiments tending to show that B. does contain a very small proportion—3 or 4 per cent.—of positive nutriment. Similar deposits occur at Dolgelly in North Wales, at South Mourne in Ireland, and in Mull and Raasay in the Hebrides. The contained organisms show that these beds have been deposited in fresh water.

BERG: formerly a duchy of Germany, now incorporated with the Prussian dominions, and divided into the circles of Düsseldorf, Solingen, Elberfeld, Lennep, and Duisburg. After various vicissitudes, B. had merged in the electorate of Bavaria. In 1806, Bavaria ceded it to France; and Napoleon the same year, adding to it large adjoining terri-

BERGA—BERGAMOT.

stories, made its area about 6,700 sq. m., and erected it into a grand duchy, constituting his brother-in-law, Murat, sovereign. Two years afterwards, Murat being transferred to the throne of Naples, Napoleon's nephew, then crown prince of Holland, was made grand duke. The peace of 1815 gave B. to Prussia.

BERGA. *běr'gá*: town of Catalonia, Spain, near the river Lobregat, 52 m. n.n.w. from Barcelona. Its streets are paved, but mostly narrow and crooked. It has five squares, three churches, several convents, a hospital, schools, etc. It is overlooked and defended by a castle with a strong battery. The people are employed mostly in husbandry and as muleteers; the produce of the fields, vineyards, and olive-yards of the neighborhood giving rise to a considerable trade. Cotton fabrics are also manufactured in B., and this branch of industry is on the increase. Pop. 5,000.

BERGAMA, *běr'ga-ma* (ancient *Pergamos*): city of Asiatic Turkey, vilayet of Khodavendikhiar; in a beautiful and fertile valley, on the right bank of the Caicus, about 40 m. n.n.e. of Smyrna; lat. 39° 4' n., long. 27° 12' e. In early times, the city was the cap. of the kingdom of Pergamus (q.v.). Many ruins still exist to attest the former magnificence of B. Present pop. about 6,000, half Greeks, half Turks.

BERGAMO, *běr'gá-mō* (the ancient *Bergomum*): fortified town of Lombardy, on some low hills between the Serio and the Brembo, about 29 m. n.e. of Milan; lat. 45° 42' n., and 9° 37' e. B. consists of two parts—the upper city, wherein the nobility, an exclusive class, reside; and the Borgo, a suburb where business is transacted. B. is well built, has a castle occupying the most elevated part of the town, and a cathedral. Silk, cotton, linen, woolen fabrics, and iron goods are manufactured. It has also an extensive trade in grindstones, quarried in the vicinity. Annually, in Aug., the largest fair in n. Italy is held here, at which money to the estimated amount of \$6,000,000 is turned over. Under the Roman empire, B. became a municipal town of importance. It was destroyed by Attila, 452; and after the fall of the Roman empire, it became one of the chief towns of the Lombard kings in this part of Italy, and cap. of a duchy. After numerous changes, its inhabitants placed themselves under the protection of the Venetian Republic, 1427, and formed an integral portion thereof (with one exception of 9 years) until the subversion of the republic by Napoleon, 1797. Bernardo Tasso, the father of Torquato, and Tiraboschi, author of *The History of Italian Literature*, were natives of B. Pop. (1901) 47,772.

B. is the cap. of the province of BERGAMO, 1,015 sq. m., having good pasturage for sheep and goats; also supplies of iron, marble, lignite, and whetstones. Pop. of province (1901) 459,594.

BERGAMOT, n. *běr'gá-mōt* [F. and Sp. *bergamote*—from It. *bergamotto*]: species or variety of the genus *Citrus* (q.v.), called also B. ORANGE, or MELLAROSA; by some botanists regarded as a variety of the orange (*C. Aurantium*); by others

as a variety of the lime (*C. Limetta*); and elevated by Risso to the rank of a distinct species, under the name of *C. Bergamia*. Of its native country or origin nothing can be told, except that it was probably derived, like its congeners, from the East. It is now cultivated in the s. of Europe; and from the rind of its fruit the well-known OIL of B. is obtained, extensively used in making pomades, fragrant essences, eau de Cologne, liqueurs, etc. The fruit is pear-shaped, smooth, of a pale-yellow color, and has a green, subacid, firm, and fragrant pulp. The essential oil is obtained by distillation, or by grating down the rinds, and then subjecting them to pressure, which is the better method. The oil is also obtained from other varieties or species of the same genus. It is of a pale-yellow color, or almost colorless. One hundred B. oranges are said to yield about $2\frac{1}{2}$ ounces of oil. Oil of B. is frequently employed for diluting or adulterating the very expensive blue volatile oil of chamomile (q. v.)

Tapestry of a coarse kind, first made at *Bergamo*, Italy, is called Bergamot.

B. is the name also of various kinds of pear, to which, however, no common distinctive character can be assigned. The proper B. pear is probably the *B. Crasanne*, a flattish, rough-skinned pear with a long stalk. It has a very juicy pulp, as soft as butter, of an extremely pleasant flavor, and is esteemed as one of the best dessert pears. Metzger, in his work on the pomaceous fruits (*Kernobstsorten*) of the s. of Germany (Frankfort, 1847), describes no fewer than 47 kinds of pears, which all bear the name of B., although some of them differ very widely from each other.

BERGANDER, n. *bèr-gân'dèr* [*berg*, and *gander*]: European Shell-drake or Burrow-duck, *Tadorna vulpanser*.

BERGEDORF *bèrg'e-dorf*: town of Germany, 10 m. e.s.e. from Hamburg. When Lübeck joined the Zollverein, 1838, it resigned to Hamburg, on payment of 200,000 thalers, its share in the government of B. and its small territory. Part of the territory is known by the name of the Four Lands (*Vierländer*). It is inhabited by a well-conditioned and industrious population, much occupied in the cultivation of fruit and vegetables for the market of Hamburg, and for that of London. Peach and apricot orchards, and fields of strawberries, extend over great part of the district. Cattle-husbandry is carried on, and much attention is given to the rearing of poultry. The people of the Four Lands are distinguished from their neighbors by peculiarity of dress, and even each of the four small communities from which the name has been derived has some distinguishing peculiarity of its own. Pop. of the town of B. about 6,000; district 16,368.

BERGEN, n. *bèr'gèn*: in s. *Africa*, a range of mountains.

BERGEN, *bèrg'en*: seaport town of Norway, province of B.; on a promontory at the head of a deep bay, called Vaagen: lat. $60^{\circ} 24'$ n., long. $5^{\circ} 18'$ e. With the exception of the n.e. side, where lofty mountains enclose it, B. is sur-

BERGEN-OP-ZOOM.

rounded by water. It is walled, and additionally protected by several forts, mounting in all upwards of 100 guns. The entrance to the harbor is dangerous without a pilot; but within, it is safe and commodious. B is built in a semi-circular form round the harbor, and has a picturesque appearance from the sea. A close inspection discovers it to be generally well and substantially built, but many of the streets are crooked and narrow. It has a cathedral, various churches, hospitals, refuges for the poor, public libraries, etc.; is the seat of a secondary judicial tribunal, of one of the three national treasuries, the diocese of a bishop, and the station of a naval squadron. Its chief manufactures are tobacco, porcelain, and cordage. It has numerous distilleries, and some ship-building yards. The principal trade of B., however, is its export of stock-fish (dried fish of the cod family) and cod-liver oil, which it obtains from the n. provinces. Twice a year the Norlandmen come to B. with their fish, receiving in exchange for them such articles of necessity or luxury as they require. In March and April, as many as 600 or 700 vessels are to be seen in the harbor of B. at once, laden with the produce of the winter-fishing, and with skins and feathers. The summer-fishing is not quite so productive. The annual value of the stock-fish exported from B. is more than 2,000,000 specie dollars (£450,000). In addition, it exports about half a million barrels of herrings, and 20,000 barrels of cod-liver oil, the finest of which is used for medicinal purposes and for lamps, the coarsest for dressing leather. The chief imports are brandy, wine, corn, cotton, woolens, hemp, sugar, coffee, etc. The climate of B. is exceedingly humid, but not unhealthful. B. was founded 1069 or 1070, by Olaf Kyrre, who made it the second city in his kingdom, and it was soon raised to the first rank. In 1135, King Magnus had his eyes put out here by his rival, Harald Gille, who was himself murdered in B. a year after. In 1164 the legate of the pope crowned King Magnus Erlingson here; and here, a century afterwards, King Hakon was crowned. The black pestilence, which ravaged Norway, first made its appearance in B., 1348, and the city has since been several times devastated by it. The first treaty entered into with any foreign nation by England, was made with B., 1217. But the English and Scottish traders were soon displaced by the merchants of the Hanse towns, who continued to exercise and abuse their monopoly until their supremacy was broken by an act issued by Frederick II. of Denmark, 1560; and in 1763 their last warehouse fell into the hands of a citizen of Bergen. B. was long the most important trading town of Norway, but has been recently surpassed by Christiania. Pop. (1900) 72,251.

BERGEN-OP-ZOOM, *berg'en-ōp-zōm*: town, formerly strongly fortified, in the province of North Brabant, Netherlands, about 20 m. n. of Antwerp: on the little river Zoom, at its entrance into the e. branch of the Scheldt; lat 51° 29' n., long. 4° 17' e. The importance of its position rendered it the object of many a contest. The Netherlands made it one of their strongholds in their struggles with Spain. The

Prince of Parma besieged it in vain, 1588; three assaults by the Spaniards, 1605, also failed, as did the siege by the Marquis of Spinola, 1622, which, after a duration of 78 days and a loss of 10,000 men, was raised on the arrival of Prince Maurice of Orange. The French, under Count Löwendal, 1747, after a siege of two months, and the springing of 41 mines by the assailants, and 38 by the defenders, took the place by storm. The French gave up the fortress under the Treaty of Paris. B. has manufactures of earthenwares, and a large trade in anchovies. Pop. (1890) 12,687.

BERGERAC, *ber-zhé-rák'*: town of France, dept. of Dordogne, about 25 m. s.s.w. of Périgueux. It is in a fertile plain on the right bank of the river Dordogne, here crossed by a fine bridge of five arches. Its principal manufactures are paper, serges, hosiery, hats, earthenware, and iron and copper articles. It is the entrepôt of the trade of the dept. The dept. of Dordogne is celebrated for its wine, which is called B. wine, and also *small champagne*. It is both white and red in color, and takes a high place among the Garonne and Bordeaux wines. B. was taken and fortified by the English 1345, who, after being driven out by Louis of Anjou, again got possession of it, and retained it until 1450. B. suffered greatly in the religious wars. It was dismantled by Louis XIII., 1621. Pop. (1886) 11,867; (1891) 14,730.

BERGERAC, SAVINIEN CYRANO DE: French author; b. 1619; distinguished for his courage in the field, and it is said in over 1,000 duels. His writings include a tragedy, *Agrippina*; *The Pedant Tricked*, from which Molière and Corneille borrowed many ideas; and *Comical History of the States and Empires of the Sun and Moon*, which probably suggested *Gulliver* to Swift, and *Micromégas* to Voltaire. Edmund Rostand, the French playwright, made him the hero of a drama, named after him, which 1899-1900 was very popular in the U. S., but resulted in a suit for plagiarism. D. 1655.

BERGERET, n. *bér'gèr-èt* [F. *bergerette*, a shepherd girl—from *berger*, a shepherd]: in *OE.*, a pastoral song. •

BERGH, *bérg*, HENRY: philanthropist: 1823-1888, Mar. 12; b. New York. He attended Columbia Coll., without graduating; and after five years in Europe, was appointed sec. of legation at St. Petersburg, which position he held 1862-64. Returning to America he began a career of devotion to the care and protection of animal life, unexampled in history, the idea having occurred to him on account of cruelties to dumb creatures which he had witnessed in Europe. He framed a bill and secured its passage through the legislature of the state of New York, 1866, April 10, incorporating the first soc. for the prevention of cruelty to animals, of which he was pres. until his death (see ANIMALS, CRUELTY TO). B. succeeded by earnest personal endeavor in having similar socs. organized during his life in nearly every state in the Union, and in several foreign countries. In New York the soc. has several times received large sums by bequest.

BERGHAUS—BERGMAN.

BERGHAUS, *bërg'how's*, HEINRICH: 1797, May 3—1884, Feb.; b. Cleves, Rhenish Prussia: geographer. He was educated at Münster. In 1816, he was made 'geographical engineer' in the war dept. in Berlin, and was employed on the trigonometrical survey of Prussia, and became (1824) prof. of mathematics in the Architectural Acad. of Berlin (a post which he held till 1855) and (1836) director of the Geographical School in Potsdam. The best known of his chartographical works is his *Physical Atlas* (90 plates, 2d ed., 1852), which forms the basis of Johnston's work published in Edinburgh. He edited several geographical periodicals, such as his *Geog. Jahrbuch* (Geog. Annual). Of a more popular nature are his *Physikalische Erdbeschreibung* (Physical Description of the Earth), *Grundlinien der Staatenkunde* (Outlines of the Political Character of States), and *Ethnographie*, all of which appeared 1846-50. Other works are *Länder und Völkerkunde* (1837-40), and *Die Völker des Erdballs* (1845-47). In 1855, he published a work entitled *Was man von der Erde weiss* (What is known of Earth). In 1862, appeared his *Landbuch von Pommern*; and in 1863, *Briefwechsel Alexander von Humboldt's mit H. Berghaus*.—His nephew, HERMANN B., b. 1828, Nov. 16; d. 1890, Dec. 3, was also a distinguished cartographer. Among his many publications were *Berghaus's Physikalischer Atlas*.

BERGHEM, *bërg'hem*, NICHOLAS: 1624-1683; b. and d. Haarlem: Dutch painter. He studied painting first under his father, afterward under Van Goyen, Weenix the elder, and other masters. He had extraordinary facility of execution and great industry; and his landscapes decorate the best collections in Europe. They show warm coloring, natural and original grouping, with occasional lack of truth in outline. His etchings are highly esteemed.

BERGLER, *bërg'ler*, JOSEPH: 1753-1829; b. Salzburg: historical painter. Having studied under Martin Knoller at Milan, and then in Parma, he returned to Germany, and settled at Passau 1786, where he was appointed painter to Cardinal Auersperg, prince-bishop, and painted many fine altar-pieces. From 1800 till his death he resided in Prague as director of the Acad. B. gave marked impetus to the fine arts in Bohemia, and his school furnished a number of eminent artists. One of his principal works is a *Cyclus* of important events in the history of Bohemia, in 66 sheets.

BERGMAN, *bërg'mân*, TORBERN OLOF: 1735, Mar. 9—1784, July; b. Katharinberg, West Gothland, Sweden: chemist. He was sent at 17 years of age to the Univ. of Upsala, to study for either the church or the bar; but disliking both these professions, he turned to natural history, physics, and mathematics, and soon made interesting discoveries in entomology, while he also distinguished himself as an accurate astronomical observer. In 1767, B. was elected to the chair of chemistry at Upsala, and continued in it till his death at Medevi. B. published a vast number of dissertations, the most important of which are collected into six octavo volumes under the title of *Opuscula Tor-*

BERGMASTER—BERHAMPORE.

bernt Bergman Physica et Chemica (Leip. 1779–81). His essay on *Elective Attractions* was translated into English by Dr. Beddoes.

BERGMASTER, n. *běrg'mäs-tér* [AS., Ger., or Sw. *berg*, a mountain or mine; and *master* (see **BERG**)]: the chief officer or judge among the Derbyshire miners. **BERGMOTE**, n. *běrg'môt* [AS. *berg*, *gemote*, an assembly]: a court or assembly for deciding all causes and disputes among the Derbyshire miners.

BERGMEAL, n. *běrg'měl* [Ger. *bergmehle*]: a white cotton-like variety of carbonate of lime, occurring as an efflorescence, falling into powder when touched. Mixed with flour, it has been used in time of scarcity for food.

BERGUES, *běrg*: town of France, dept. of the Nord, about 5 m. s.s.e. from Dunkirk. It is on the Colne, at the foot of a hill, was strongly fortified by Vauban, and has the means of flooding the valley with water. The canal of B., which admits vessels of 300 tons burden, unites it with Dunkirk and the sea, and its favorable situation makes it the entrepôt of the produce of the adjoining country. It has manufactures of soap, tobacco, and earthenware, also sugar and salt refineries. B. was walled and fortified first by Baldwin II., Count of Flanders; and Baldwin IV. erected a splendid abbey, of which two towers only remain, in honor of St. Winnoc, who retired here in the beginning of the 10th c. Between the 13th and 16th c. B. suffered much from wars, and changed masters several times. Pop. (1891) 5,435.

BERGYLT, *běr'gilt* (*Sebastes marinus*, formerly *Norvegica*): Zetland name of a fish of the family *Scorpenidae*. It is the Rose Fish or Red Perch (though not a perch); also called Hemdurgan; Snapper; the Bream, in Gloucester, Mass.; John Dory, in Nova Scotia. It is sometimes called the Norway Haddock, although it has no resemblance to the haddock. It is an inhabitant of all the northern seas, and is occasionally found on the northern British coasts. It is red, dark on the upper parts, reddish-white beneath. Its gill-covers are armed with short spines; the anterior rays of the dorsal fin are strong spines, the posterior soft; whole length 2 ft. or more. It is good food. In 1880 the U. S. Fish Commission found it plentiful on the edge of the Gulf Stream, in water 100–300 fathoms off Newport; not known before s. of Cape Cod.

BERHAMPOOR, *běr-âm-pôr'*: town in British India, presidency of Madras; a military station in the dist. of Ganjam; n. lat. 19° 20', e. long. 84° 50'; 525 m. n.e. of Madras, and 325 m. s.w. of Calcutta. The cantonments, themselves on a rocky ledge, have to the s. and e. a plain of considerable extent, on the nearer edge of which is the native town with a pop. of (1881) 23,599; (1891) 25,653.

BERHAMPORE, or **BURHAMPORE**: town in British India, presidency of Bengal; in the dist. of Moorsshedabad; on the left bank of the Bhagirathi or Bhagruttee, which, itself the first great offset of the Ganges, afterwards joins another great offset, the Jellinghee, to form the Hoogly.

B. is in n. lat. $24^{\circ} 5'$ and e. long. $88^{\circ} 17'$; 118 m. by land, and 161 by water, from Calcutta. It has long been one of the principal military stations of British India. The grand square, enclosing a spacious parade-ground, is particularly striking; and the quarters of the European officers form handsome ranges of brick-built and stuccoed edifices. There are here a college, hospitals, and mission churches. B. is the seat also of a civil establishment; and the houses of its chief members, erected in convenient spots in the neighborhood, give the place an air of grandeur. B. though at one time extremely unhealthful, from its low and moist site on the delta of the Ganges, has been so much improved by sanitary measures as to be second to no spot of Bengal in salubrity. Pop. (1881) 23,605; (1891) 23,515.

BERHYME, v. *bě-rīm'* [*be*, and *rhyme*]: to rhyme about, to introduce into rhyme. (Used in contempt.)

BERING (or BEHRING), *bēr'ing*, VITUS: 1680-1741, Dec. 19; b. Horsens, Denmark: famous navigator. In 1704, he entered as captain the newly-formed navy of Peter the Great. From his ability and daring in the wars with Sweden, he was appointed to conduct an expedition of discovery in the sea of Kamtchatka. Sailing, 1728, from a port on the e. of Kamtchatka, he followed the coast n. until he believed, from the westward trending of the land, that he had reached the n.e. point of Asia. It is now, however, believed that the cape which B. rounded was the s. of the real East Cape (lat. 66°), and that he never actually reached the strait to which he has given his name. After some years spent in explorations on the coasts of Kamtchatka, Okhotsk, and the n. of Siberia, he sailed, 1741, from Okhostk toward the American continent, and sighting land about $58\frac{1}{2}^{\circ}$ n. lat., he followed the coast northward for some distance; but sickness and storms obliged him to return. He was wrecked on the desert island of Avatcha, since called Bering's Island, and died there. The previous year he had founded the present settlement of Petropaulovsk, in the Bay of Avatcha.—BERING'S ISLAND is the most westerly of the Aleutian Islands, lat. $55^{\circ} 22' \text{ n.}$, long. 166° e. ; area 30 sq. m. It is barren, but is an important station of the Alaska fur industry,

BERING SEA, or BEHRING'S SEA, or SEA OF KAMTCHATKA: a part of the north Pacific Ocean, bounded w. by Kamtchatka, e. by Alaska, s. by the Aleutian Islands, and n. by Bering Strait; extreme dimensions n. to s. about 1,000 m.; e. to w. somewhat more; its triangular shape, however, makes its area less than these figures might indicate. There are several islands in this sea, and fogs prevail constantly; but owing to the shallowness of the strait there are no great icebergs. The Pribyloff Islands in this sea are about 250 m. n. of the Aleutian Islands.

BERING SEA ARBITRATION: decision of a controversy between the United States and Great Britain concerning the catching of seals in Bering Sea, arranged by a treaty signed at Washington 1892, Feb. 29, whose ratifications

BERING SEA ARBITRATION.

were exchanged at London, May 7. When Russia ceded Alaska to the United States 1867, she ceded therewith the Pribyloff Islands in the s.e. portion of that sea, and whatever rights in Bering Sea had pertained to Russia in virtue of her possession of the territory adjacent. It was early contended by some that among her rights thus possessed and transferred was sovereignty over Bering Sea: this was met by the contention of the British govt. that though Russia might have exerted such sovereignty, making that sea *mare clausum*, that claim had never been conceded by other powers, and had been expressly combated by both Britain and the United States; and that consequently the United States as succeeding to Russia's rights had, by its own prior contention, vitiated such a claim.

The status of the international controversy regarding the right of the United States to control absolutely the taking of seals in Bering Sea, was (1891, Jan.) in general outline as follows.—The United States maintained: (1). The Pribyloff Islands were bought by the United States from Russia 1867. Through the whole period of Russian possession, citizens of the United States and of all other nations refrained from molesting the seals in the open water, and all govts. permitted Russia to control the catching of fur seals in Bering Sea: thus was acquired or acknowledged a right by Russia which passed to the United States in the purchase of the islands. This right, however, was pressed, not (as had been the earlier contention of some) to the extent of claiming Bering Sea as a 'closed sea,' but only so far as needful for preservation of the seals. (2). The United States owns and possesses the land to which the seals resort, and is therefore in equity entitled to protect the seals from destructive attack while they are approaching or leaving their breeding-place at the islands. Pelagic sealing as now conducted threatens the rapid extermination of this species so valuable to man.—Great Britain maintained: (1). Bering Sea is a part of the high seas and open to all the world: the mere abstention of all other govts. and peoples from killing fur seals in that sea gave Russia no right to prevent the killing of seals whenever any other persons than Russians saw fit to engage in it; and if Russia had no such right she could have transferred no such right to the United States. (2). Seals are wild animals; and when they enter the waters of the open sea, any person is entitled to capture them.

Between 1886 and 1890, U. S. revenue cutters in Bering Sea made numerous seizures of sealing vessels flying the British flag, the result of which was a protracted diplomatic controversy, threatening at times to embroil the two nations in war. After full discussion between Lord Salisbury, Brit. prime minister, and Mr. Blaine, U. S. sec. of state, the two govts. finally decided to submit to arbitration the whole question of the jurisdictional rights of the United States in Bering Sea, the preservation of the fur seal, and the rights of the citizens or subjects of either country as to the taking of seals. A treaty to that effect was signed 1892, Feb. 29, and ratified May 7. A *modus vivendi*, concluded

BERING SEA ARBITRATION.

1891, June 15, established a close season; and both govts., in reviewing it, 1892, Apr. 18, resolved to submit to arbitration the question also of compensation for abstention from the right to take seals 'during the pendency of the arbitration.'

The *personnel* of the tribunal of arbitration comprised seven members: John M. Harlan, of Ky., associate justice of the U. S. supreme court, and Senator John T. Morgan, of Ala., appointed by the pres. of the United States; Sir James Hannen, judge of the probate, divorce, and admiralty division of her Britannic majesty's high court of justice, and Sir John S. D. Thompson, Canadian prime minister, appointed by the queen of England; Baron de Courcelles (elected pres. of the court), appointed by the pres. of France; Marquis Visconti Venosta, appointed by the king of Italy; and Justice Gregero W. W. Gram, of the supreme court of Christiania, appointed by the king of Sweden and Norway. General John W. Foster, of Ind., was the U. S. agent; and the Hon. C. H. Tupper, Canadian minister of marine and fisheries, was the Brit. agent. The leading U. S. counsel were the Hon. E. J. Phelps, of Vt., James C. Carter and Frederick R. Coudert, of N. Y.; while Sir Charles Russell, Sir Richard Webster, and Christopher Robinson, Q. C., were the leading Brit. counsel.

The sessions of the tribunal were held in Paris, 1893, Feb. 23—July 8. The decision of the arbitrators was announced Aug. 15.

As a whole, the award was a compromise. On each of the five points submitted, regarding the American claims to exclusive jurisdiction over the fur seal beyond the three-mile limit, the decision was against the United States. America has neither a derivative title to the e. half of Bering Sea, nor any proprietary title to the seals. All the technical points by which the United States hoped to amend and extend the body of international law were overruled; and the tribunal refused to create a precedent of unknown bearing, even for the commendable object of protecting the seals. However, this latter object was provided for by the establishment of liberal protective regulations morally binding on both nations; and, inasmuch as the preservation of the seal herds was the ultimate motive with which the United States entered into the arbitration, Americans generally are disposed to regard the award as a practical, if not a theoretical, vindication of their claims. It is significant that on the principal issues the decision of the arbitrators was almost unanimous. On the question of the American claims to a derivative title and exclusive jurisdiction in Bering Sea, covered by the first four points submitted, Senator Morgan's was the only dissenting voice. On the fifth point, Mr. Justice Harlan sided with Mr. Morgan. On this point of alleged proprietary right in the seals, even beyond the ordinary three-mile limit, the United States had laid greatest stress in later stages of the controversy; but the foreign arbitrators unanimously decided that this claim had no foundation in law.

That the tribunal, however, was deeply impressed with the arguments for the alleged property rights of the United

BERING SEA ARBITRATION—BERING STRAIT.

States, and with the evident inhumanity and destructiveness of the common practice of pelagic sealing, was evident in the provisions made for the protection of the seal. They prohibit the taking of seals within a zone of 60 m. around the Pribyloff Islands; they establish a close season, May 1—July 31, in the waters of the n. Pacific Ocean and Bering Sea, and they provide that none but sailing vessels may engage in seal-taking in the open season, prohibiting the use of nets, firearms, or explosives, except shotguns used outside Bering Sea in the open season. It was made the duty of the United States and England to take measures to enforce these provisions. Each party is required to furnish a sufficient patrol to prevent vessels of its own nationality from violating them. On these protective regulations, the arbitrators differed more widely than on the legal aspects of the case. Sir John Thompson, the Canadian representative on the tribunal, joined with the two U. S. arbitrators in dissenting, but presumably on different grounds from the latter. The arbitrators themselves recognized that the proposed regulations were tentative in character; and they made provisions for future modifications by requiring that they be submitted to reconsideration every five years. That even the fate of the sealing industry itself, notwithstanding the protective regulations established, was possibly in doubt, was evident from the suggestions which the arbitrators added to their formal award. The international regulations being limited to the international domain, the high seas only, should be supplemented by other rules applicable within the territorial waters of the two powers, and agreed upon by them. In the interests of commerce and humanity, it might even be advisable to prohibit sealing absolutely, either on land or sea, subject to any exceptions agreed on, for at least one year, and to repeat this measure if requisite.

The question of property rights having been settled adversely to the U. S. contentions, it was thereby settled that damages must be paid by the United States to compensate the sealers kept out of Bering Sea through the operations of the *modus vivendi*, or whose vessels were illegally seized prior to an agreement for a close season; also damages for illegal seizure of vessels prior to the adoption of a *modus vivendi*: the latter question remains as a subject for future diplomatic action.

The Paris arbitration is a noble exponent of the heightened moral tone in international relations which marks a true advance in civilization.

BER'ING STRAIT, or BEHRING'S STRAIT: separating Asia from America, and connecting the Pacific with the Arctic Ocean. The proof that the two continents were not connected was given by the voyage of a Cossack named Deschnev, who, 1648, sailed from a harbor in Siberia, in the Polar Ocean, into the Sea of Kamtchatka. But the whole voyage was long regarded by Europeans as a fable, until Bering's (q.v.) expedition 1728. The strait was explored and accurately defined by Cook 1778. The narrowest part is near 66° n. lat., between East Cape in Asia, and

BERJA—BERKELEY.

Cape Prince of Wales in America. The distance between the two capes, in a direction from n.w. to s.e. is about 36 m.; about midway are three uninhabited islands. The greatest depth, about 30 fathoms, is toward the middle, and the water is shallower toward the American coast than the Asiatic. A very old Japanese map in the British Museum shows the leading features of this strait very accurately.

BERJA, *běr'há*: town of Spain, province of Andalusia, at the foot of the Sierra de Gador, about 22 m. w. of Almeria. It has manufactures of linen fabrics, hats, hardware, and leather, and a trade in wine and oil. The inhabitants are engaged largely in mining lead, which is plentiful in the Sierra de Gador. Agriculture is prosecuted to some extent. Pop. about 16,000.

BERKELEY, *bérk'lē*, town, Alameda co., Cal.; on the e. side of San Francisco Bay, 9 m. n.e. of San Francisco, 5 m. from Oakland; on the Southern Pacific railroad. Its principal industries are planing-mills and screen manufactories. It has 4 weekly and 1 bi-weekly newspapers, one of which is published by and for deaf-mutes. B. is important as a literary centre, being the seat of the University of California, State Agricultural Coll., and California Institution for the Deaf, Dumb, and Blind. It has also excellent public schools and 2 banks (cap. \$80,000). It is favorably situated on elevated ground, and is well lighted and abundantly supplied with water. Pop. (1890) 5,101; (1900) 13,214.

BERKELEY, *bérk'lē*: small town of Gloucestershire, Eng., 15 m.s.w. of the town of Gloucester, on the small river Avon, a mile and a half e. of its junction with the estuary of the Severn. The town lies in the fine vale of B., which is 25 m. long and four broad, between the Severn on the w. and beech-covered hills on the e. This vale consists of rich meadow pasture-land, on a deep, fat loam, and is celebrated for its dairies and cheese. The latter is the far-famed 'Double Gloucester,' of which each cow yields abt. 340 lb. a year. Near B. is the entrance to the B. and Gloucester canal, navigable for vessels of 600 tons. There is some trade in timber and malt. B. castle, a battlemented building on an eminence s.e. of the town, was granted about 1150, by Henry II. to Robert Fitzhardinge, with power to enlarge and strengthen it. Here Edward II., was murdered 1327 by Maltravers and Gourney. In the civil wars of Charles I., the castle held out for the king, but was taken after a nine days' siege by the Parliamentarians. In the castle is preserved the cabin-furniture of Drake the navigator. Dr. Jenner, the discoverer of vaccination, was a native of B., and is buried in the parish church of St. Mary here. Pop. of borough under 1,000; of parish abt. 5,000.

BERKELEY, *bérk'le*, GEORGE, Bishop of Cloyne: 1634, March 12—1753, Jan 14; b. Kilerin, near Thomastown, county of Kilkenny, Ireland; eldest son of William B., a cadet of the family of the Earl of Berkeley. He studied at the school of Kilerin, at which Swift also received his early education; and in his 15th year he followed his great

countryman to Trinity College, Dublin, where, 1707, he obtained a fellowship. At college he enjoyed the society of Swift, who patronized him, as he did almost everybody, and who subsequently had a great deal to do in shaping his fortunes.

B.'s career as an author began, 1707, by the publication of his *Arithmetica absque Algebrâ aut Euclide Demonstrata*. This was followed, 1709, by the celebrated *Essay towards a New Theory of Vision*, in which he shows that visual consciousness is ultimately a system of arbitrary signs, symbolizing for us certain actual or possible tactual experience. The association between the visible and invisible signs has grown up in our minds through habit, but depends on the constant conjunction of the two by the will of the universal mind. In 1733, B. produced a pamphlet in vindication of it—viz., *The Theory of Vision or Visual Language, showing the Universal Presence and Providence of the Deity Vindicated and Explained*. Here true substance is shown to be conscious spirit, and true causality the free activity of such a spirit, matter apart from a conscious mind being an impossible and unreal conception. His *Treatise concerning the Principles of Human Knowledge* appeared so early as 1710. Its object was to undermine the materialism of the age, by denying, on received principles of philosophy, the reality of an external, material world. If there is no external world, he argued, the phenomena of sense can be explained only by supposing a Deity continually necessitating perception. Physical substance is only the constant relation between phenomena connected by association and conjoined by the operations of the universal mind. Nature is thus nothing more than conscious experience, but its constancy is the sign and proof of the divine intelligence. B.'s system is a monument at once of marvellous subtlety of mind and of the most pious devotion of the intellectual powers to the cause of religion. The object was, as the full title of the book itself sets forth, to inquire into and remove the causes of skepticism, atheism, and irreligion. The deeper aspects of Berkeley's thought have been much neglected, many of his followers having merely embraced his explanation of the subjective mechanism of association, without embracing the deeper spiritual intuition. It is not a little remarkable, however, that in following out this pious purpose, he prepared the way for a subtler form of skepticism (in Hume's philosophy) than the world had previously known. See PERCEPTION.

In 1713, B. went to reside in London, where, in the same year, he published a defense of his ideal system, *Three Dialogues between Hylas and Philonous*. Shortly after this he was appointed chaplain and secretary of legation under Lord Peterborough, whom he accompanied to Italy. In 1721, he returned to London; and, 1724, he became Dean of Derry, with an income of £1,100, and resigned his fellowship.

B. was not a man to settle in the enjoyment of leisure and opulence. The Dean of Derry set to devising schemes of usefulness, fixing at last on one by which his deanery

BERKELEY SOUND—BERKHAMSTEAD.

and income were to be exchanged for exile and £100 a year. This was the Bermudas College scheme for training pastors for the colonies, and missionaries to the American Indians. Swift, failing to induce him to give up the project, made influence with ministers to support it, which they promised to do. Full of hope, B. prepared for his exile; he married, 1728, Aug., Anna Elvert, dau. of Right Hon. John Forster, speaker of the Irish house of commons, and soon afterwards sailed for Rhode Island. The support promised by government was never given to him, and, after six years, he returned to England heartbroken with failure, and harassed by creditors. He had barely returned, however, when (1734) he received the bishopric of Cloyne, as a mark of favor from the queen. He was now once more in the enjoyment of leisure for literature. Soon appeared the *Minute Philosopher*, followed by various letters and pamphlets on the state of the country, and in 1749 by *A Word to the Wise*. In 1744, he gave the world his notions of the virtues of Tar-water in a book entitled *Siris*. Tar-water appears to have been in his thoughts as it was in his system—which must have been saturated with it—from this time till his death. His last work was *Farther Thoughts on Tar-water*, published 1752. The fact is, he was hypochondriacal for many years before his death. He died at Oxford, whither he had gone to live with his son, who was studying at Christ Church. A genial companion, an affectionate and steady friend, he was loved by all of his contemporaries who had the privilege of his society; a graceful writer, a subtle philosopher, and an active churchman, his whole life was devoted to usefulness, and ennobled by the purity of his aspirations. The best edition of his works is that of Prof. Fraser, LL.D., 1871.

BERKELEY SOUND: most frequented inlet of the East Falkland Island, near its n.e extremity; lat $51^{\circ} 30'$ s., and long. $57^{\circ} 56'$ w. Though difficult to enter, it contains several excellent harbors. Its shores yield ample supplies of water, cattle, and vegetables.

BERKHAMSTEAD, GREAT, or BERKHAMSTEAD ST. PETER'S: market-town of Hertfordshire, Eng.; in a deep valley, on the right bank of the small river Bulborn, on the Grand Junction canal and the London and North-western railway, 28 m. n.w. from London. The main street is about a mile in length. The town is well built, mostly of brick. The parish church, a cruciform building in the centre of the town, is chiefly in the Perpendicular style. The father of the poet Cowper was rector of B., and the poet himself was born here. The town is supposed to be of Saxon origin, and the kings of Mercia had a palace or castle here. William the Conqueror met the nobles and prelates at B., and took an oath to rule according to the ancient laws and customs of the country. He bestowed the castle and manor of B. on his half-brother, the Earl of Moreton. The property, having reverted to the crown, is now held by the Princes of Wales as Dukes of Cornwall.

BERKSHIRE.

BERKSHIRE, *bérk' shér*: notable co. in w. Mass., forming the entire w. end of the state; length n. to s. about 50 m., width about 25 m.; 1,000 sq. m.; cap. Pittsfield. It is drained by the Deerfield, Housatonic, and other rivers, and its surface is diversified by mountains, hills, and forests. It is intersected by the Boston and Albany, the Housatonic, and other railroads; and the Hoosac tunnel, 5 m. long, through the Hoosac Mountains, is an important engineering work. B. is noted for its picturesque scenery, which has attracted many residents of the large cities, who have adorned it with their beautiful summer homes. The highest point in the state is Saddle Mountain, in this co., 3,505 ft. high. It is a wooded and a farming district, and there are extensive manufactures. Pop. (1890) 81,108; (1900) 95,667.

BERKSHIRE, *berk'shír*: a midland county of England, bounded n. by Gloucester, Oxford. and Bucks; e. by Oxford and Bucks; s.e. by Surrey; s. by Hampshire; w. by Wiltshire; greatest length, 50 m.; average breadth, 15.; 752 sq. m. nearly one-half of which is under tillage, one-fourth in pasture, and one-sixteenth in wood. B., which is one of the most beautiful of the English counties, lies in the valley of the Thames, and has an undulating surface, rising in some parts into hills. Older tertiary strata, consisting of the London clay, occupy the east of the county; cretaceous strata, the middle; oolitic, the west. A range of chalk-hills, or downs, connected with the Chilterns on the e. and the Marlborough Downs on the w., crosses the country into Wiltshire, from Reading to Wallingford, attaining at White Horse Hill (so called from the gigantic figure of a horse rudely defined in the chalk—a relic of ancient times) a height of 893 ft. Between this range—the w. part of which is occupied by sheep-walks—and a smaller oolitic one skirting the valley of the Thames, is the Vale of White Horse, the richest part of the county, and drained by the Ock. To the s. of the Downs is the fertile Vale of Kennet, drained by the river of that name, and its feeder, the Lambourn. To the e. is the forest district comprising Windsor Forest, part of Bagshot Heath, etc. The forest consists chiefly of hazel, oak, beech, ash, and alder. The Thames skirts the whole n. border of the county, winding through a course of 100 m., but in a direct line only 52, navigable nearly the whole way. It is the chief river of B., the other rivers being its tributaries; of which the principal are the Kennet, Leddon, and Ock. The Kennet is navigable for 30 m. The climate of B. is very healthful, being mild in the valleys, and bracing on the high lands. The soil varies greatly; in the valleys generally a fertile loam, with a subsoil of chalk, gravel, or clay. The country between the valleys of Kennet and White Horse consists chiefly of sheep-walks; and along the Thames, and to the w. of the Ridge Way, or Downs, it is chiefly dairy and pasture land. The chief crops are oats and wheat. 'Double Gloucester' and 'pineapple' cheese are exported in large quantities to London. There is a superabundance of horses. Swine are extensively reared, especially near Faringdon, the breed being one of the best in

BERLENGAS—BERLICHINGEN.

England. Property is very much divided, and the number of gentlemen's seats and villas is very great. The farms are generally of moderate size. The county is traversed by the Great Western railway and its branch-lines, and by two canals. B. is divided into 20 hundreds, 151 parishes, and 12 poor-law unions. It returns 5 members to parliament, 3 for the county, 1 for Reading (the county town), and one for Windsor. It contains the municipal boroughs of Wallingford, Abingdon, Newbury, and Maidenhead, and the market-towns of Faringdon, Hungerford, Wantage, Wokingham, East Ilsley, and Lambourn. The county has no manufactures of importance. The British and Roman remains are numerous, including Roman roads, and many camps and barrows. Of the old castles, the principal relic is Windsor (q. v.); of monastic establishments, the abbeys of Abingdon and Reading. The churches are small, and from the scarcity of building-stone, are often built of chalk and flint. There are many Norman churches, erected in the 12th and 13th c. Pop. (1891) 238,446; (1901) 180,366.

BERLENGAS, *běr-lěn'gás*: group of rocky islands in the Atlantic Ocean, off the w. coast of the Portuguese province of Estremadura, 10 m. n.w. of Peniche. The principal one, named Berlenga, is fortified, and has been used as a state-prison.

BERLEPSH, *běr'lěpsh*, **EMILIE VON**: b. Gotha, Germany, 1757: author, remarkable for the purity of her German. She published *Miscellanies in Prose and Verse* (1787), highly esteemed; and *Caledonia* (1802), after her return from a journey through Scotland.

BERLICHINGEN, *běr-lik'ing-én*, **GOETZ** or **GOTTFRIED VON**. 'of the Iron Hand': d. 1562, July 23: German knight who may, with Ulrich von Hutten, be considered as the last worthy representative of the chivalry of the middle ages, then expiring. He was born at Jaxthausen, Würtemberg, in the ancestral castle of his family, which may be traced back into the 10th c. His education was conducted by his uncle Kuno, with whom he attended the diet of Worms, 1495. He gratified his passion for war at first by taking part in several of the quarrels between German princes, and at the siege of Landshut lost his right hand, which was replaced by one of iron, yet shown at Jaxthausen. When the general peace of the country had been established under Maximilian I., Goetz retired to his castle. But a restless spirit, and the general turbulence of the time, involved him in continual feuds with the neighboring barons and free cities, in which he showed a mixture of lawless daring and chivalrous magnanimity. Having joined Duke Ulrich of Würtemberg against the Swabian league, on the duke's expulsion, he was taken prisoner, and had to pay a ransom of 2,000 florins. In the Peasants' war, 1525, he took part with the insurgents, and was chosen leader of a part of their forces. In his narrative, he ascribes this step to compulsion; more likely it was his own restless and turbulent spirit, and a desire for revenge on

his old enemies of the Swabian league. At the unfortunate issue of the war, he at first made his escape, but was afterwards fallen upon unawares by a band of leaguers, who extorted an oath that he would appear before the league when summoned. Accordingly he had to appear at Augsburg, where he was kept in arrest for several years, and at last sentenced to perpetual imprisonment in his own castle and, in case of his breaking this condition, to a fine of 20,000 florins. He passed eleven years in this state, and was only pardoned on the dissolution of the league. He afterwards took part in campaigns in Hungary and in France. He wrote an account of his own life, pub. by Pistorius (Nürn. 1731; Bresl. 1813), which furnishes an excellent picture of the social life and manners of the period, and on which Goethe grounded his drama of *Goetz von B.*, translated by Sir Walter Scott.

BERLICHINGEN, JOSEPH FRIEDRICH ANTON, Count VON: 1759-1832; b. Tyrnau: Hungarian officer and author; served in the Austrian army against the Turks in the campaigns of 1788 and 1789. In 1790, he abandoned the military career, established himself in the midst of his vast domains, which he preserved from the French invasion, and, at the period of mediatization, he saw the greater part of his lands pass under the sovereignty of the king of Würtemberg, who appointed him member of the cabinet council, count, etc. After 1818, B. withdrew from all concern in public affairs, busying himself in translating into Latin verse Goethe's *Hermann and Dorothea* (Tubingen, 1825).

BERLIER, *ber-le-ā'*, THÉOPHILE: 1761-1840; b. Dijon, France: jurist and statesman. Elected member of the Convention (1792-95) by the dept. of Côte-d'Or, he voted for the death of Louis XVI., became a member of the committee of public safety, and after the fall of Robespierre, proposed the suppression of the revolutionary tribunal. He was re-elected to the Council of Five Hundred, became member of the cabinet council, was active in the compilation of the civil code, and received the title of count of the empire. Being secretary of the provisional government in 1815, he was banished soon afterwards as a regicide, and retired to Brussels until the revolution of 1830, when he returned to France. During his exile he applied himself to the study of history, and published his *Historical Abstract of Ancient Gaul before Caesar* (1822), and *War of the Gauls* (1825).

BERLIN, *bér-līn*: city, cap. of Green Lake co., Wis.; 96 m. from Milwaukee; on Fox river, and on the Chicago, Milwaukee and St. Paul railroad; and connected with Green Bay by steamboat. It is in a good dairy district, and has a granite quarry, flouring mills, and various factories. B. has 1 daily, 2 weekly, and 1 monthly periodicals, a high school, and 2 national banks (cap. \$100,000). Pop. (1880) 3,353; (1890) 4,149; (1900) 4,448.

BERLIN.

BERLIN, n. *bér-lín'* or *bér'lín*: a kind of carriage first made in Berlin: ADJ. denoting a kind of variously colored worsted for fancy-work.

BERLIN, *bér'lín*: cap. of Prussia, and seat of the imperial govt. of Germany, one of the finest and most important cities of Europe; on the river Spree, lat. $52^{\circ} 30'$ n., long. $13^{\circ} 24'$ e. The city is built upon a flat sandy plain, which, though cultivated, is far from fertile. The Spree, at this place about 200 ft. wide, with a current so sluggish as scarcely to be perceptible, divides the city into two nearly equal parts, and communicates with the Oder and the Baltic by canals. A more unlikely site, in some respects, could hardly have been selected for a city, as from its flatness, and the sandy character of the soil, much inconvenience results to the inhabitants: in summer, the heat reflected from the sand is very intense, and clouds of dust rise continually; while in winter the cold is equally great. There being little or no declivity, water stagnates in the streets, producing ill effects. In the Friedrich's-strasse, about 2 m. long, there is not a foot of descent from one end to the other. Notwithstanding these natural disadvantages the advance of the city, especially in late years, has been extraordinary. In 1861, it covered 14,000 acres; in 1900 its area was 25,000 acres. Although, as far back as the 13th c., the central part of the present city was inhabited, B. was long little more than a fishing-village; it was not till the great elector, Frederick-William (1640-88) had united the separate duchies of which Prussia is now formed, that B. became of consequence as the most central town, and the capital of a large state. His successor, Frederick I., first king of Prussia, imitated his predecessor in enlarging and beautifying the capital; and at the close of his reign, in the end of the 17th c., the population numbered about 50,000. In the next century, it received accessions of French and Bohemian colonists, driven into exile by religious persecution. Every inducement was then held out to bring foreigners to settle in the rising city. Under Frederick the Great, B. continued to prosper. At his death, the inhabitants numbered 145,000. After the peace of 1815, B. increased with extraordinary rapidity, and, being the seat of government, a focus of the arts and sciences, and a great centre of commercial enterprise, it has gradually risen to a position which entitles it to rank as the metropolis of the German empire.

The centre of the city is now devoted almost exclusively to commerce, and round this part, extending considerably beyond the city boundaries, are congregated the residences of the citizens. Small towns and villages are gradually being incorporated with the great city; Moabit has already disappeared as a separate community, and Charlottenburg, a town of 18,000 inhabitants, is likely soon to follow. B. consists of 16 different quarters and six suburbs, containing about 560 streets, 65 squares, 700 public buildings (including 60 churches), and 26,000 private houses (comprising 305,000 dwellings or suites of apartments). The houses built of brick, plastered or stuccoed outside, and they

soon acquire a faded appearance. The style of these has very much altered since 1864. Prior to that, the greater portion of the houses were of one, two, or three stories, but these are fast giving way to houses of four, five, and more stories, the larger predominating. The increase in the value of house-property has been enormous, and the result is that abt. one-tenth of the people are driven to take up their abode in cellars underground. More than 63,000 families live in dwellings of one room; in 1887 one house in Ackerstrasse harbored no fewer than 1,000 persons. B. contains many very fine buildings. Of these may be mentioned the Royal Palace, the Emperor's Palace, and that of the crown prince; the Royal Library, with upward of 1,000,000 vols. and 30,000 MSS.; the museums, the Arsenal, and the Guard-house. Most of those named are situated in the street 'Unter den Linden' (so called from its double avenue of limes), one of the finest and most spacious streets in Europe. The city is further adorned throughout with numerous statues of military heroes, the equestrian statue of Frederick the Great, by Rauch, being the most remarkable. In regard to educational institutions, B. has 14 gymnasia, 8 *real* gymnasia, 55 higher girls' schools, 3 seminaries, 213 elementary schools with 170,000 pupils. Beside these and many special schools (for medicine, mining, military science, architecture, etc.), there are between 50 and 60 *kindergärten*. The museum (old and new) and the gallery of paintings are among the most important in Europe. The University, established 1810, has a very high reputation. Among the professors who have rendered it famous are the names of Fichte, Hegel, and Schelling. The number of students attending it averages about 6,000. Among the numerous institutions of B. are the Acad. of Sciences, by far the most important of the kind in Germany; the Acad. of Architecture; the naval and engineering colleges; several seminaries for teachers and missionaries; asylums for the deaf, dumb and blind; besides many learned societies. There are in all 20 theatres in Berlin. About 88 per cent. of the pop. are Protestant, 7 per cent. Rom. Cath., and 5 per cent. Jews. Church-going, however, seems much neglected: of the total number of Protestants, fewer than 2 per cent., on an average, attend divine worship on Sundays.

The Old Museum contains antiquarian specimens, collections of coins, the gallery of ancient sculpture, the picture gallery, with about 1,500 paintings. The New Museum contains a very extensive and valuable collection of casts arranged in 12 saloons; the Egyptian Museum, a fine collection of engravings numbering upwards of 500,000, etc. Outside the celebrated Brandenburg Gate (erected in imitation of the Propylæa at Athens, 70 ft. high, and 200 ft. wide) extends the Thiergarten, the largest and most important park near the town. To the s.w. of this lies the Zoological Garden, recently considerably extended. Other places of interest worthy of mention are the aquarium, the new synagogue, the exchange, the opera-house, the royal château of Monbijou, the Warrior's Monument, and

BERLIN BLUE—BERMUDA GRASS.

the Monument of Victory, 190 ft. high, recently erected in commemoration of the great victories of 1870-71, etc.

The commerce and manufactures of B. have increased so rapidly of late years, that it now ranks among the most important mercantile places of continental Europe. Staple commodities are grain, spirits, and wool. Principal branches of industry are engine-building, which gives employment to 14,700 workers, iron-casting, and the manufacture of woollen and silk goods, and fancy articles; calico-printing is also largely engaged in. In respect of its publishing trade, B. now holds the second rank among German cities. In 1875, there appeared 410 journals, of which 33 were daily papers. Pop. (1858) 455,000; (1871) 825,389, including 21,000 soldiers; (1890) 1,574,485; (1900) 1,888,848.

BERLIN, or PRUSSIAN, BLUE: see BLUE.

BERLIN DECREES: see CONTINENTAL SYSTEM.

BERLIN SPIRIT: a coarse whisky made chiefly from beetroot, potatoes, etc.: see DISTILLATION.

BERLIOZ, *běr le-o'*, HECTOR: 1803, Dec. 11—1869, Mar. 9; b. La-Côte-St.-André, dept. of Isère, France; son of a physician: fertile musical composer. He studied in Paris, at the Conservatoire de Musique, winning 1828 the second prize, and 1830 the first. His works are very numerous: among the most successful are the symphonies of *Harold*, *Romeo et Juliette*, and the *Symphonie Funèbre et Triomphale*, the requiem for Gen. Darnémont, 1837; the overture to *Carnaval Romain*, and the *Hymne à la France*, performed 1844. In 1839, he was made a chevalier of the Legion of Honor. The peculiarity of his style is his endeavor to make instrumental music the exponent of particular feelings as well as general emotions. As to the merit of this notion, critics differ, some deeming it to lead to incoherence; while others rank B. the chief of the romantic school.

BERM, n. *běrm* [F. *berme*: Ger. *brame*]: in *fort.*, a path or space of ground from 3 to 5 ft. in width left between the exterior slope of the parapet and the ditch; a narrow shelf of ground between any two earthen slopes; the bench or bank of a canal opposite the towing-path.

BERMEJO, or VERMEJO: important affluent of the Paraguay (q.v.).

BERMONDSEY, *ber'mond-zǐ*: a s.e. suburb of London, on the s. bank of the Thames: traversed by the Greenwich railway. It has extensive tan-yards and wharfs. Pop. of borough (1901) 130,486.

BERMUDA GRASS, *běr-mū'da* (*Cynodon dactylon*): low, creeping perennial grass, native of Bermuda. It produces short leaves at the base, and sends up slender, nearly leafless culms, having 3-5 slender, diverging spikes at the summit. See CYNODON. B. G. endures extremes of heat and drought, but the tops are killed by frost. It is considered worthless at the n.; but in portions of the s. is valued for pasture, hay, and for preventing embankments, levees, and hillsides from washing. It seldom seeds in the United States, but is propagated by sowing pieces of the

roots in rows or broadcast. It spreads rapidly and is difficult to exterminate.

BERMUDAS, *ber-mū'daz*, or SOMMERS'S ISLES, *sūm'ērz*: named respectively from Bermudez, a Spaniard, who first sighted them, 1527, and from Sir George Sommers, an Englishman, whose shipwreck here in 1609 was the immediate occasion of their being colonized from Virginia—itsself only four years old—in 1611. This low and lonely archipelago is a mere group of specks, for, though it numbers perhaps 500 islets, yet it measures only about 12,000 acres in all; the whole occupying a space of about 20 m. in length by little more than six in breadth. The value of this natural fortress, which can hardly be overrated, arises from its situation. In lat. $32^{\circ} 20'$ n., and long. $64^{\circ} 50'$ w. the B. occupy, commercially and politically, a singularly commanding position. At a distance of 600 m. from Cape Hatteras, North Carolina, they are about equally remote from the n. of Maine and from the s. of Florida; again, between the two grand divisions of British America, they form an almost indispensable bond of union; and lastly, they flank, on either side, the two marine highways which respectively lead from the N. Atlantic to the Gulf of Mexico, and from the Gulf of Mexico to the N. Atlantic. The four principal islands are—St. George's, $3\frac{1}{2}$ m. in length; Bermuda, 15; Somerset, 3; and Ireland, 3—the breadth ranging between 2 m. and 1 furlong. The minor islands of St. David, Cooper, Smith, Long-Bird, Nonsuch, etc., form numerous picturesque creeks and bays of great size and depth, such as the Great Sound, Castle Harbor, Harrington Sound, and others. Most of the other members of the group are individually insignificant, many of them indeed without name or inhabitant. St. George's Isle, the military station of the colony, commands the entrance of the only passage for large vessels—the narrow and intricate channel which leads to its landlocked haven being defended by strong batteries. From the strange shapes of most of the islands, and the number of spacious lagoons, the communications are almost as necessarily by water as those of Venice; while the cedar-boats glide under the bluest sky, through an element so clear as to reveal, even to its lowest depths, the many varieties of fish sporting among the coral rocks, and the exquisitely variegated shells. This archipelago is the most northerly point on the globe where the living zoophyte still piles up its submarine architecture. The climate may be said to complete the paradise, resembling that of Persia, with the peculiar addition of a constant sea-breeze. Between Dec. and March, the thermometer ranges from 60° to 66° ; in June, from 83° to 86° ; and between Apr. and Sep. from 75° to 79° . As the dew-point ranges high, the air is moist at all seasons. With respect to productions, the entire soil presents under tillage of every description only 1,227 acres; in grass for cattle-fodder, 33; and in wood or pasture, 10,339. Of the cultivated grounds, the main crops are potatoes, onions, and other garden-vegetables, arrow-root, maize, etc. Besides being useful as a station for those

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British vessels of war which are charged with the care of the West Indies on the one side, and the n. provinces on the other, Bermuda was formerly an important depot for convicts, but since 1862 it has ceased to be so. Between Bermuda and Halifax, Nova Scotia, there is a regular steamer carrying the mails. The total imports in 1892 had a value of \$1,580,558; exports, \$554,184. The imports from the United States in 1892 were \$973,757; exports thither only \$552,178. The revenue in 1885 was \$143,450; the public debt \$26,240. The fisheries are of value. Although vegetation is so luxuriant, yet grain, flour, rice and live-stock are imported from the United States. In the B., emancipation has been decidedly beneficial, though here, as in Antigua, it was carried at once into full effect without the intermediate stage of apprenticeship. The group is under the authority of a governor, a council of 9 members, and an assembly of 36. There are 12 free and 9 private schools. More than two-thirds of the population belong to the Church of England, which has four clergymen. Presbyterians, Wesleyans, and Rom. Catholics have each one or more. Pop. (1871) 12,121; (1881) 14,314, there being about seven colored persons to every five whites; (1893) 15,519; (1901) 17,535

BERN, or BERNE, *běrn*: the most populous, and next to the Grisons the most extensive, canton of Switzerland; nearly 2,650 sq. m.; between lat. 46° 20' and 47° 30' n., and long. 6° 50' and 8° 27' e. It has France on the n.; on the other three sides it is surrounded by its sister cantons. B. is one of the three governing cantons of the Swiss Confederation (since 1849 it has been the permanent seat of the Swiss government), and had, 1900, a population of 589,433.—about one-fifth of the total inhabitants of Switzerland. Of these 67,000 were Rom. Cath., the rest Protestant. The fertile valleys of the Aar and the Emmen divide the mountainous Alpine region in the s. from the Jura Mountains in the n. The valleys of Simmenthal, Lauterbrunnen, Grindelwald, and Hasli, in the s., called the *Bernese Oberland*, are celebrated for beauty. The lakes of Thun, Brienz, Neuchatel, and Bienne are in B., which is watered by the Aar and its several tributaries. The climate, from the great difference in the elevations of the territory, is very variable and subject to sudden changes and frequent rains and fogs, but it is generally healthful. The districts of the Aar and the Emmen are the most fruitful, producing corn and fruits of various kinds and affording excellent pasturage for cattle, which, with dairy produce, are the chief agricultural wealth of Bern. Corn and potatoes are not raised in sufficient quantities for home consumption. The vine grows in some districts, and hemp and flax in small quantities are raised. The horses of the Emmenthal are much prized. The lakes abound with salmon and trout. Iron, lead, and copper are found in the canton, which has also quarries of gypsum, marble, freestone, and granite. Its manufactures, which are not extensive, are chiefly of linen, coarse woolens, leather, iron and copper wares, articles of wood, and watches. The canton is traversed by good roads, and its

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lakes and the river Aar are well supplied with steam packets. The educational condition of the canton is good. B. entered the Swiss Confederation, in which it now holds the second rank, in 1352. In the 15th and 16th c. it added to its possession Aargau and Vaud, which it lost during the wars of the first Napoleon; but it received in return Bienne and its territory, and the greatest part of the bishopric of Basel. The present constitution of the canton, dating from 1846, is one of representative democracy.

BERN: cap. of the above canton; lat. $46^{\circ} 57'$ n., long. $7^{\circ} 26'$ e.; on a lofty sandstone promontory, more than 1,700 ft. above the sea, formed by the winding Aar, which surrounds it on three sides, and is crossed by three bridges, one built 1841-44, the second 1883, the third a railway bridge. The fourth side was defended by fortifications, but these have been converted into public walks, from which a magnificent prospect is enjoyed. B. has an imposing appearance from a distance, and a nearer view discloses one of the best and most regularly built towns in Europe, as it is the finest in Switzerland. The houses are massive structures of freestone, resting upon arcades, lined with shops, and furnishing covered walks on both sides of the street. Rills of water flow through the streets, which are also adorned with numerous fountains. There are many fine public promenades in the environs, and the view of the Alpine peaks from the city is magnificent. The principal public buildings are a Gothic cathedral, founded 1421, with some interesting tablets and relics; a new and magnificent structure, designed to accommodate the Swiss diet and administration; the mint, the hospital, and the university. B. has an interesting museum, and a valuable town library of 75,000 vols. The manufacturing industry is not great—gunpowder, firearms, leather, straw hats, and paper, are the chief articles. It has a considerable trade in the produce of the surrounding district. B. was founded by Berthold V., 1191, who is said to have given it the name B. because he had killed a bear on the spot. A charter from Frederick II., 1218, made it a free imperial city, and it gradually extended its possessions until it became an independent state; and, between 1288 and 1339, successfully resisted the attacks of Rudolph of Hapsburg, Albert his son, and Louis of Bavaria. In B. was held, 1528, the Conference (or Disputation) of Bern, establishing the Reformation in B. It is sometimes considered the turning-point in favor of the Reformation: see D'Aubigne's *History of the Reformation*. When the French entered B., 1798, they found 30,000,000 francs in the treasury. The corporate property of B. is very large—sufficient to defray all municipal expenses, provide the whole of the citizens with fuel gratis, and besides, to leave a surplus for annual distribution among them. B. is the residence of foreign ministers; and, since 1849, the permanent seat of the Swiss government and diet. Haller, the distinguished physiologist, was born at Bern. On account of the traditionary derivation of its name (Old Swabian *bern*, a bear), bears have for several centuries been maintained in B. at the expense of the community. The

French, when they captured B., 1798, took possession of the bears, and sent them to the Jardin des Plantes, Paris; but the Bernese have since secured other specimens of their favorite animals, which are one of the 'sights' of the city. Pop. (1901) 64,864.;

BERNADOTTE, *bér-nā-dot'*: see CHARLES XIV.

BERNALDA, *běr-nâl'dá*: town of s. Italy, province of Potenza, 32 m. w. by s. from Saranto. Pop. abt. 7,000.

BERNARD, CLAUDE, *oěr-năr'*: 1813, July. 12—1878, Feb. 10; b. Saint-Julien, near Villefranche, dept. of the Rhone: physiologist. He studied medicine at Paris; was admitted, 1839, as a pensioner in one of the hospitals; and, 1841, became Magendie's assistant at the College of France. He graduated, 1843, Doctor of Medicine, and ten years later, Doctor in Science; and was appointed in 1854, Feb., to the chair of general physiology in connection with the Faculty of Sciences in Paris. The same year, he was chosen member of the Acad. of Sciences; and, 1855, he succeeded Magendie as prof. of experimental physiology in the College of France. B.'s first researches were devoted to the physiological action of the various secretions of the alimentary canal. His Memoir, published 1844, in the *Gazette Médicale*, treats of the mechanism by which the gastric juice is secreted, and also of the modifications which alimentary substances undergo from that liquid. To the *Comptes Rendus* of the Biological Soc. he also contributed papers on the Saliva, on the Intestinal Juice, on the Influence of the Different Pairs of Nerves on the Digestive Apparatus, and on the Respiratory and Circulatory Systems. His first really original paper, however, was that on the Function of the Pancreas, in which he demonstrated that that viscus is the true agent of the digestion of fatty bodies. This essay obtained, 1849, the grand prize in experimental physiology, and was printed in the *Comptes Rendus* of the Acad. of Sciences, 1856. In 1849, appeared his first researches on the Glycogenic Function of the Liver, establishing the doctrine that the blood which enters the liver does not contain sugar; while blood which leaves that organ, and goes to the heart by the hepatic veins, is charged with it. He also showed the influence of the nervous system on this function, and produced artificial diabetes by division of the pneumogastric. For this discovery, which was keenly criticised, but is now regarded as sound, he obtained, 1851, the grand prize in experimental physiology. In 1852, he laid before the Institute his Experimental Researches on the great Sympathetic System, and on the Influence exerted by Division of this Nerve on the Animal Heat. This paper procured him, for the third time, the prize of experimental physiology, 1853. After 1854, when he succeeded Roux as member of the Institute, he continued his researches on the glycogenic function of the liver, and published his courses of lectures at the College of France, on *Experimental Physiology in its Application to Medicine* (1855–1856); on *The Effects of Toxic and Medicated Substances* (1857); on *The Physiology and Pathology of the Nervous System* (1858);

on *The Physiological Properties and the Pathological Alterations of the Various Liquids of the Organism* (1859); on *Nutrition and Development* (1860); and his *Introduction to the Study of Experimental Medicine* (1865). In 1862 he became officer of the Legion of Honor; in 1867, commander; and in 1869 he was made a member of the Academy.

BERNARD, GREAT SAINT (*Mons Jovis*): famous mountain-pass in the Pennine Alps, between Piedmont and the Valais. The pass attains an elevation of more than 8,000 ft. above the sea-level; and almost on its very crest, on the edge of a small lake, which is frozen over nine months out of the twelve, stands the *hospice*, founded, 962, by Bernard de Meuthon, a Savoyard nobleman, for the benefit of pilgrims to Rome, and now largely used by travellers across the Alps. The hospice, next to the Etna Observatory, the highest habitation in Europe, is occupied by ten or twelve St. Augustine monks, who, with their noble dogs of Saint Bernard breed, have rescued many hundred travellers from death by exposure to cold, or burial in the snow, which in winter ranges from 10 to 40 ft. in depth. The humanity of the monks shortens their own lives very considerably, the rigorous cold—which has been known to be 29°, and is frequently as low as 18° and 20°, below zero F.—and the difficulty of respiration, often compelling them to leave with ruined health before they have completed the period of their vow—15 years. They enter on their humane mission at the age of 18. The hospice is a substantial stone building, capable of affording sleeping-accommodation to 70 or 80 travellers, and shelter to about 300. As many as 500 or 600 persons have taken advantage of the hospitality of the monks in one day, and it is calculated that 8,000 or 9,000 travellers are annually indebted to their kindness. The resources of the monks are mainly derived from voluntary subscriptions and gifts, but they draw a little from independent property. Formerly, they had much more from the latter source, but a forced contribution of \$24,000 to the government of the canton of Valais impaired their revenues very much. The pass, traversed in early times by the Romans, Charlemagne, and Frederick Barbarossa, is celebrated for the passage of 30,000 French troops under Napoleon, 1800, May.

LITTLE SAINT BERNARD, which forms part of the chain of the Graian Alps, is the most convenient of the Alpine passes, and is supposed to have been the one by which Hannibal led his forces into Italy. It also possesses a hospice, 7,192 ft. above the sea.

BERNARD OF CLUNY, *ber'nard ōv klū-nē'*: abt. 1122–1156: monk under Peter the Venerable, Abbot of Cluny or Clugny. He wrote an extended Latin poem, *Contempt of the World*, ranked among the best productions of mediæval church literature. A few of our modern hymns, such as *Brief Life is Here our Portion, Jerusalem the Golden*, etc., are mere extracts translated from B's poems.

BERNARD, SAINT, of Clairvaux: 1091–1153, Aug. 20; b. Fontaine, near Dijon, Burgundy: one of the most eminent

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theologians of the middle ages. He became a monk of Citeaux, 1113; founded a new branch of that order at Clairvaux, in Champagne, and became its first abbot, 1115. He was canonized by Alexander III., 1174. His ascetic life, solitary studies, and stirring eloquence made him, during his lifetime, the oracle of Christendom. He was honored with the title of the 'mellifluous doctor,' and his writings were termed 'a river of paradise.' He rejected the doctrine of the immaculate conception, which had been introduced into the French Church, and rose above the cruel prejudices of his age in repressing the monkish persecutions of the Jews in Germany. B. is perhaps most widely known in connection with the disastrous crusade of 1146. Charged by the pope to excite the religious zeal of the people of France and Germany, he accomplished his mission with fatally memorable success. Fields, towns, cities, and castles were in many places almost depopulated, and innumerable legions, fired by his prophetic eloquence, hurried to the East, nine-tenths of whom never saw their homes again.

Regarding B. in his more spiritual aspect, we may say that his mystic, but at the same time practical, Christian doctrine was a wholesome antidote to the dry and cold scholasticism which prevailed among the churchmen of his age, although the intolerance with which he treated Abelard (see ABELARD) and Gilbert de Porrée must be reprobated. Luther says of St. B.: 'If there ever lived on the earth a God-fearing and holy monk, it was St. B. of Clairvaux.' In the course of his life, he founded 160 monasteries. His writing are exceedingly numerous. They consist of epistles, sermons, and theological treatises. Of the first, there remain 439; of the second, 340; and of the third, 12. They are all instinct with genius, though it is difficult for us now to appreciate their extraordinary influence. The best edition of the works of St. B. is that of Mabillon, Paris (6 vols.) 1667-90; and in Migne's *Patrologie*, 1851-2 (4 vols.). The monks of the reformed branch of the Cistercians, which he instituted, are often called, after him, Bernardines. He gave name also, in France, to the nuns of the Cistercian order, which his sister, St. Humbeline, is said to have founded. See Morison's *Life and Times of St. B.* (3d ed., Lond. 1877).

BERNARD DOG, GREAT SAINT: a race or variety of dog deriving its name from the hospice of St. Bernard, where it has been long kept by the monks for the purpose of assisting them in the rescue of perishing travellers. The Saint B. dog is remarkable for great size, strength, sagacity, noble appearance, and majestic gait. There are two sub-varieties having the same general characteristics save as to the coat—the long-haired dogs resembling the finest kinds of Newfoundland, and the short-haired ones being much like a mastiff. Tawny and brindle are the usual colors; but some dogs have a skin more or less clouded with gray, liver-color, and black. Usually only six dogs are kept at the hospice, four being used daily. Avalanches or other accidents have frequently reduced the

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number. The place of those which die or are lost, has been supplied by others from the valleys around, descendants of dogs originally sent from the hospice, so that the breed has been kept pure or nearly so till the present time. Some of the handsomest dogs of both sub-varieties are seen in other countries, where they are much esteemed as pets and favorites. The origin of the breed is debatable; but the stock is generally said to have sprung from a Danish dog, left at the hospice by a traveller, and the native Alpine shepherd's dog.

The custom of the monks is to send out two of their number, accompanied by two servants (*marronniers*) daily, when the weather at all permits, for some distance down the pass on the Swiss side, and a similar party down the Italian side, to succor fatigued or worn-out travellers. The dogs are specially valuable for assisting the monks in keeping to the line of road, and in finding their way back. The monks may carry with them stimulants and clothing in case of emergency; but it is, to say the least, very unusual to burden the dogs by making them the bearers. And though the dogs have, according to the monks, sometimes gone out unaccompanied by men, it is almost needless to say that the tale of dogs regularly sallying forth two by two, without human attendants, and bearing kegs of spirits and clothing, shows plain marks of poetic license. Sometimes both dogs and men have been overwhelmed and lost in the snow; the lives of both are shortened by habitual exposure, which usually causes at last severe rheumatism. In the museum at Berne is the stuffed skin of the famous dog Barri, which helped in saving more than 20 human lives.

BERNARDIN, *bér-nâr-dăng'*, SAINT, of Sienna: 1380—1444; b. Massa-Carrara, of a distinguished family: famous by his rigid restoration of the primitive rule among the degenerate order of the Franciscans, of which he became a member 1404, after having already, 1397, joined the brotherhood of the *Disciplinati Mariae*. In 1438, he was appointed vicar-gen. of his order for Italy. B. was unwearied and devoted in his activity during the great Italian plague of 1400, both as an impressive preacher and an attendant upon the sick and dying. He founded the *Fratres de Observantia*, a branch of the Franciscan order, which already during his day numbered more than 300 monasteries in Italy. B. was canonized by Pope Nicholas V. 1450, his festival being May 20. His eminently mystical works were published by Rudolf (4 vols., Venice, 1591), and by De la Haye (5 vols., Paris, 1636).

BERNARDINE, n. *bér'nar-dîn*, or *-dîn*: one of the Cistercian monks, a branch of the old Benedictines, from St. Bernard, considered its second founder: ADJ. pertaining to the monks of the order of St. Bernard. See CISTERCIANS.

BERNAUER, *ber'now-èr*, AGNES: d. 1435, Oct. 12: the beautiful daughter of a poor citizen of Augsburg, whose sad story is like a romance. Duke Albrecht of Bavaria,

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only son of the reigning Duke Ernst, saw the maiden at a tournament at Augsburg, given in his honor by the nobility, and fell violently in love with her. Albrecht was young, handsome, and manly, and Agnes was not insensible to his attractions and his rank; but she was too pure to listen to his overtures till he promised to marry her. They were then secretly united, and Albrecht carried his young wife to the castle of Vohburg, which he inherited from his mother. Here they enjoyed their matrimonial happiness undisturbed, till Albrecht's father formed the plan of marrying his son with Anna, daughter of Erich, Duke of Brunswick. The determined opposition which he met soon made him aware of his son's attachment to the Augsburger's daughter, and of the strength of his passion for her; and he resolved on energetic measures to break it off. He accordingly contrived that, at a tournament at Regensburg, the lists were shut against his son, as one that, against the rules of chivalry, was living with a woman in licentiousness. Albrecht swore that Agnes was his wife, but in vain; he was still excluded. He now caused Agnes to be openly honored as Duchess of Bavaria, gave her a numerous retinue of servants as a princess, and the castle of Straubing for a residence. She, full of sad forebodings of a dark fate, erected in the Carmelite convent of the place an oratory and a tomb. As long as Duke William, Albrecht's uncle, lived, who was greatly attached to his nephew, nothing further was attempted against the happiness of the lovers. But after his brother's death, Duke Ernst, in the absence of Albrecht, ordered Agnes to be arrested and executed without delay. Accused of sorcery, by which she was alleged to have bewitched Albrecht, she was carried, bound hand and foot, by the executioners to the bridge of the Danube, and in the presence of the whole people thrown into the river. The current having floated her again to the side, one of the executioners ran with a long pole, and, fastening it in her golden hair, held her under the water till she was drowned. Maddened at this atrocity, Albrecht took up arms against his father, and, in league with Ernst's other enemies, wasted the country. It was in vain that Duke Ernst entreated his son to relent. It was not till the emperor Sigismund, and the other friends of the family, united their exhortations, that Albrecht at last returned to his father's court, where, after a time, he consented to marry Anna of Brunswick. To regain the forfeited regard of his son, Duke Ernst had a chapel erected over the grave of the murdered lady, and Albrecht founded in the year of her death daily masses for her in the Carmelite monastery at Straubing; even after twelve years he renewed the foundation, and had the bones of his 'honored wife' transferred to the tomb provided by herself, and covered with a marble monument. The unhappy loves of Albrecht and Agnes were long the theme of popular song; and the story has been made the subject of at least three tragedies, one by Jul. Körner (Leip. 1821), another by A. Böttger (3d ed. Leip. 1850).

BERNAY, *bër-nā'*: town of France, dept. of Eure,

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pleasantly situated on the right bank of the Charentonne, 26 m. w.n.w. of Evreux. Woolen, linen, and cotton manufactures are actively carried on, also paper-making, bleaching, dyeing, and tanning. There is a considerable trade not only in the products of these manufactures, but in grain, cider, horses, and cattle. B. is the seat of the greatest horse-fair in France, which is held on Wednesday of the fifth week in Lent, and is attended by nearly 50,000 persons, from all parts of France, chiefly to purchase post and diligence horses, for which Normandy has long been celebrated. B. is the seat of a tribunal of commerce. The church of St. Croix has a large and magnificent altar, and marble statues and sculptures: the church of La Conture was formerly celebrated for the cure of persons possessed of evil spirits. The grain-market occupies part of the remains of an interesting old abbey church. B. has a communal college, and a hospital. Pop. (1881) 6,931; (1891) 8,016.

BERNBURG, *bérn'burg* or *börn'búrg*: town in the German duchy of Anhalt, till 1863 cap. of Anhalt-Bernburg; on the Saale, 23 m. s. of Magdeburg, lat. 51° 47' n., long. 11° 45' e. Two parts of B., surrounded by walls, lie on the left bank of the river, and are united by a bridge with the third part on the opposite side, which has a castle, but is not walled. B. is well built, has several literary and charitable institutions, and manufactures of porcelain, paper, and starch. Pop. (1900) 34,431.

BERNESE, n. *bér-nēz'*: an inhabitant or inhabitants of Bern: **ADJ.** pertaining to Bern or to its people.

BERNHARD, *bérn'hârt*, Duke of Weimar: 1604, Aug. 6—1639, July 8; youngest son of John, 3d duke. On the outbreak of the Thirty Years' War, he took the side of Protestantism. In 1631, when Gustavus Adolphus appeared in Germany, B. supported his cause; but his career was cut short by death; as many believe, from poison administered by his physician.

BERNHARDT, *bérn-hârt'*, **ROSINE** (called **SARAH**): actress: b. Paris, 1844, Oct. 22. She entered the Paris Conservatoire 1858; appeared publicly first at the Théâtre Français in *Iphigénie* and *Valérie*; withdrew from the stage for a short time; then reappeared at the Gymnase and Porte-Saint-Martin in burlesque parts; and returned to high art at the Odéon. She visited London 1879, 86, 88, and 89, appearing at the Gaiety Theatre in 'La Dame aux Camélias' and 'Fédora,' and at the Lyceum as *La Tosca*; and 1890, Oct. 23, made her first appearance in Sardou's new *Cleopatra* at the Porte-St.-Martin, Paris. She has made successful tours through the United States, Italy, Algeria, and S. America, and received the order of the French Academy.

BERNI, **FRANCESCO**, called also **BERNA** or **BERNIA**: abt. 1490—1536; b. Campovecchio, Tuscany: Italian poet, from whom comic or jocose poetry has the name of *Versi Berneschi*. He first entered the service of Cardinal Dovizio da Bibbiena, and was afterwards for several years sec. to

Ghiberti, chancellor to Clement VII., and Bp. of Verona. About 1533, he betook himself to Florence, where he was made a canon, and lived in favor with the two Medici, Duke Alessandro, and Cardinal Ippolito, till his death. His *Opere Burlesche* (2 vols., Flor. 1548; Lond. 1721) are to be found in the *Classici Italiani* (Mil. 1806). His recast or rifacimento of Boiardo's *Orlando Innamorato* was received with such favor that it was thrice reprinted, 1541-45. A critical edition was published at Florence, 1827. Berni's version is still read in Italy (and justly so) in preference to the original.—COUNT FRANCESCO BERNI, 1610-93, dramatic and lyric poet, is a different person.

BERNICE: see BERENICE.

BERNICLE, n. *bēr'nī-kl*: see BARNACLE.

BERNIER, *bēr-ne-ā'*, FRANÇOIS: b. Angers, France; d. Paris, 1688, Sept. 22: physician and traveller. Having taken his degree of Doctor at Montpellier, he departed for the East about 1654, and visited Syria, Egypt, Arabia, and India, in the last of which countries he resided twelve years in the capacity of physician to Aurungzebe. On his return to France, he published an account of his travels in India in 1670-71. The work is delightful in style, accurate in the delineation of manners and customs, and in the descriptions of places, and clear in the exposition of the causes of those political events that carried Aurungzebe to the throne. He visited England in 1685. The titles of his chief works are as follows: *Voyages de M. Bernier contenant la Description des États du Grand Mogol, de l'Indoustan, du Royaume de Cachemire*, etc.; *Mémoire sur le Quétisme des Indes*; *Abrégé de la Philosophie de Gassendi*; *Sentiment de M. Descartes*.

BERNINA, *bēr-nē'nā*: mountain of the Rætian Alps, upward of 13,000 ft. high, in the Swiss canton of Grisons, with a remarkable and extensive glacier, Morteratsch, The B. Pass, with an elevation of 7,695 ft., over which a carriage-road has been made, unites the valleys of the Engadine and Bregaglia on the n. with the Valteline on the s., but is dangerous an account of avalanches.

BERNINI, *bēr-nē'nē*, GIOVANNI LORENZO: 1598-1680, Nov. 28; b. Naples: Italian sculptor and architect. In his eighteenth year he finished his admired group of Apollo and Daphne, which gave promise of greater excellence than was afterwards reached. Pope Urban VIII. employed B. to produce designs for the embellishment of the Basilica of St. Peter at Rome. The bronze *baldacchino*, or canopy, covering the high-altar of that edifice, the palace Barberini, the front of the College de Propaganda Fide, the church of Sant' Andrea à Monte Cavallo, and numerous ornaments in St. Peter's, are by B. His greatest work in architecture is the colossal colonnade of St. Peter's. In 1665, B. accepted the flattering invitation of Louis XIV., and travelled to Paris with a numerous retinue and great pomp. In Paris, he resided above eight months; but not wishing to interfere with the designs of Claude Perrault for the Louvre, he confined himself entirely to sculpture

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His visit, however, proved highly remunerative, and he returned to Rome richly laden with gifts, leaving to his children an estate of abt. \$500,000. Besides his works in sculpture, B. left numerous paintings. No artist, perhaps, was ever so much admired and rewarded during his lifetime as B.; but time has subtracted from his fame.

BERNOUILLI, *bër-nô'ye*: name of a family that became famous through Europe in various branches of mathematical and physical science. The family originally resided in Antwerp, whence, 1583, its attachment to the reformed religion forced it to seek an asylum in Frankfort. Afterward the Bernouillis settled in Basel. Eight of them became highly distinguished; for the three most celebrated, see BERNOUILLI, JAMES; JOHN; DANIEL.

BERNOUILLI, DANIEL: 1700, Feb. 9—1782, Mar. 17; b. Gröningen, d. Basel; son of John. He studied medicine as well as mathematics. The family reputation early helped him to the professorship of mathematics at St. Petersburg, which he held for several years, retiring ultimately to Basel, much against the will of the czar. At Basel, he occupied in succession the chairs of anatomy and botany, and of experimental and speculative philosophy. He published various works, 1730–56, of which the chief are concerned with pneumatical and hydrodynamical subjects.

BERNOUILLI, JAMES: 1654, Dec. 25—1705, Aug. 16; b. Basel. He devoted his life to the study of mathematics. He became prof. of mathematics in the Univ. of Basel, succeeding in that chair the distinguished Megerlin. Among his first works were *A Method of Teaching Mathematics to the Blind*, and *Universal Tables on Dialling*. These were followed by *Conamen Novi Systematis Cometarum*, an essay on comets, suggested by the appearance of the comet of 1680; and an essay *De Gravitate Ætheris*. He published a variety of memoirs on scientific subjects. *De Arte Conjectandi* was a posthumous work concerning the extension of the doctrine of probabilities to moral, political, and economical subjects. His memoirs are in the *Journal des Savans* and *Acta Eruditorum*; his collected works were pub. in 2 vols. 4to, Geneva, 1744. Among his triumphs are to be recorded his solution of Leibnitz's problem of the isochronous curve, his determination of the catenary, an investigation of the properties of isoperimetrical figures. At his request, a logarithmic spiral was engraved on his tomb, with the motto, *Eâdem mutâta resurgo*.

BERNOUILLI, JOHN: 1667, July 27—1748, Jan. 1; bro. of James; b. Basel. He and James were the first two foreigners honored by being elected associates of the Acad. of Sciences at Paris, and members of the Acad. of Berlin. John was a chemist as well as mathematician. In 1694, he became a doctor of medicine, and soon afterwards prof. of mathematics at Gröningen, whence he removed to succeed his brother James in the Univ. of Basel. His forte was pure mathematics, in which he had

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no superior in Europe in his day. Among his achievements are the determination of the 'line of swiftest descent,' and the invention of the 'exponential calculus.' His collected works were published at Geneva, 4 vols. 4to, 1742; and his correspondence with Leibnitz, 2 vols., 1745.

BERNOUSE, n. *bér'nôz*: another, but incorrect, spelling of BURNOUSE.

BERNSTEIN, *bern'stîn*, GEORGE HEINRICH: 1787, Jan. 12—1860, Apr. 5; b. Kospeda, near Jena, where his father was pastor: distinguished orientalist. In 1806, he entered the Univ. of Jena, where he studied theology, philosophy, and eastern languages. In 1812, he was appointed extraordinary prof. of oriental literature in Berlin, and in 1821, regular prof. In 1843, he was appointed to Breslau. Besides a number of lesser treatises, and of contributions to scientific and critical journals, he established his reputation as an oriental scholar by the publication of an Arabic poem of Szafieddin of Hilla (Leip. 1816). But his greatest achievements were in Syriac literature, on which he published several pamphlets, expository and critical, 1837-47, and a lexicon to Kirsch's *Chrestomathia Syriaca* (new edition, 2 vols., Leip. 1832-36).

BERÖE, *bër'ô-ê*: genus of the class *Ctenophora* (comb-bearers), which, with the other and lower classes Actinozoa and Hydrozoa, forms sub-kingdom *Cœlenterata* (see ZOOLOGY). It belongs to the ord., *Eurystomeæ*, and family Beroïdæ, characterized by a nearly globular or oval body, of a delicate jelly-like substance, with an alimentary canal passing through its axis, which is vertical as the B. floats, the body strengthened by bands of somewhat firmer texture, 'which run like meridian lines from pole to pole.' These bands are covered with rows of large cilia, the motion of which is extremely rapid, and is evidently controlled by the will of the animal, so that it swims with rapidity, and easily changes its course. The motion of the cilia causes a beautiful iridescence: the animals also are phosphorescent by night. *B.* (or *Cydidippe*) *puleus* (figured for comparison in article ACALEPHÆ) is a little creature, very abundant in the sea on many parts of the British coasts. It is provided with two very long and slender tentacula, which proceed from the sides of the body, and are covered with a great number of still finer filaments. These organs are probably employed for seizing food. This, and other kinds of B., form a great part of the food of whales.

BEROSUS, *be-rō'sūs*: prob. abt. B.C. 260: an educated priest of Babylon, who had a knowledge of the Greek language. He wrote, in Greek, three books of Babylonian-Chaldæan history, in which he made use of the oldest temple archives of Babylon. The work was highly esteemed by Greek and Roman historians, but unfortunately only a few fragments have been preserved by Josephus, Eusebius, Syncellus, and others. Even these fragments are of great value, as they relate to the most obscure portions of Asiatic history. They have been edited by Richter

in his *Berosi Chaldaeorum Historiæ quæ supersunt* (1825). The *Antiquitatum Libri Quinque cum Commentariis Joannis Annii*, first published in Latin by Eucharius Silber (Rome 1498) as a work of B., and often republished, was the pseudonymous work of the Dominican, Giovanni Nanni of Viterbo.

BERRE, *bâr*, ETANG DE: an extensive lagoon of France, dept. Bouches-du-Rhône, with large salt-works and eel-fisheries. It discharges its surplus waters into the sea by the Port-du-Bouc.

BERRETTA, or BIRRETTA, n. *běr-rět'ta* [It. *berrétta*, a cap, a bonnet]: a square black cap; a scholastic bonnet peculiar to ecclesiastics, and to lawyers on the European continent.

BERRY, n. *běr'rĭ*, BERRIES, n. plu. *běr'rĭz* [AS. *berie*; Icel. *ber*; Ger. *beere*, a berry: Gael. *beir*, to produce]: any small juicy fruit. BERRIED, a. *běr'rĭd*, furnished with berries.

BERRY (*Bacca*), in Botany: a small fruit more or less fleshy and juicy, and not opening when ripe. The inner layers of the Pericarp (q.v.) are of a fleshy and succulent texture, sometimes even consisting of mere cells filled with juice, while the outer layers are harder, and sometimes even woody. The seeds are immersed in the pulp. A B. may be one-celled, or it may be divided into a number of cells or compartments, which, however are united together not merely in the axis, but from the axis to the rind. It is a very common kind of fruit, found in many different natural families, both of exogenous and endogenous plants; e.g. the fruits of the gooseberry, currant, vine, barberry, bilberry, belladonna, arum, bryony, and asparagus, which, though agreeing in their structure, possess widely different properties. Some of them, which are regarded as more strictly berries, have the calyx adherent to the ovary, and the placentas—from which the seeds derive their nourishment—parietal, that is, connected with the rind, as the gooseberry and currant; others, as the grape, have the ovary free, and the placentas in the centre of the fruit.—The orange and other fruits of the same family, having a thick rind dotted with numerous oil-glands, and quite distinct from the pulp of the fruit, receive the name *hesperidium*; the fruit of the pomegranate, which is very peculiar in the manner of its division into cells, is also sometimes distinguished from berries of the ordinary structure by the name *balausta*. See POMEGRANATE. Fruits like that of the water-lily, which at first contain a juicy pulp, and afterward, when ripe, are filled with a dry pith, are sometimes designated *Berry capsules*. The gourds also, which at first have 3 to 5 compartments, but when ripe generally consist of only one compartment, are distinctively designated by the term *pepo*, *peponium*, or *peponida*, to which, however, *gourd* may be considered equivalent.

BERRY, or BERRI, *běrrĭ*: one of the old French provinces (now forming the departments of Indre and Cher, q.v.); lat. 46° 10'—47° 40' n., long. 1°—3° e., greatest length

BERRY—BERRYER.

about 100 m., greatest breath 90. Having come into the possession of the French crown, it gave title at various times to French princes, the younger son of Charles X. being the last who held it.

—BERRY, CHARLES FERDINAND, Duke DE : 1778, Jan. 24—1820, Feb. 13; b. Versailles: second son of the Count of Artois (afterwards Charles X.) and of Maria Theresa of Savoy. In 1792, he fled with his father to Turin; fought with him under Condé against France; afterwards visited Russia, and lived in London and Edinburgh. In 1814 he returned to France, and the following year was appointed by Louis XVIII. commander of the troops in and around Paris. In 1816, he married Caroline Ferdinande Louise, eldest dau. of Francis, afterwards king of the Two Sicilies. On this marriage the continuance of the elder Bourbon line depended. The Duke de B. was assassinated as he was conducting his wife from the opera-house to her carriage, by a person named Louvel. He left only one daughter, Louise-Marie-Thérèse d'Artois, Mademoiselle de France, born 1819; but 1820, Sep. 29, the widowed duchess gave birth to the prince, Henry, Duke of Bordeaux, afterwards styled Count of Chambord. After the July revolution, 1830, in which the duchess exhibited immense force of character and courage, offering herself to lead on the troops against the insurgents, she, with her son, followed Charles X. to Holyrood, but left a considerable party in France in favor of the pretensions of her son as Henry V. of France. During a visit to Italy, the duchess was so far encouraged in her ambition, that a project was formed for reinstating the Bourbons in France; and, accompanied by several friends, she landed near Marseille 1832, Apr. 29. After many adventures, she was betrayed, and was imprisoned in the citadel of Blaye. The confession of the duchess, that she had formed a second marriage with the Neapolitan marquis, Lucchesi-Palli, at once destroyed her political importance, and the government set her at liberty: she died 1870.

BERRYER, *bā-re-ā'* or *bēr-yā'*, PIERRE ANTOINE: 1790, Jan. 4—1868, Nov. 29; b. Paris: distinguished advocate and politician. He distinguished himself first by his defense of victims of the restoration. In 1829, he was chosen deputy, and ever afterwards steadily represented the rights and policy of the elder Bourbons. His legitimist tendencies kept him for a time in the political background under Louis Philippe; but as the legitimist party in the chamber increased, his position grew in importance. He repeatedly undertook the defense of persons prosecuted by the government, not only of his own party, but republican leaders. It was he who defended Louis Napoleon in the chamber of peers after the Boulogne *attentat*. With the elder Bourbons he was in constant communication, and was one of the heads of the legitimist party who made a pilgrimage to the Count of Chambord in London, 1843. After the revolution of 1848, he represented the Bouches-du-Rhône; seemed inclined to support the gov-

BERSAGLIERI—BERSERKER.

ernment of the president, Louis Napoleon; and became a member of his privy-council. But this did not hinder him from going to Wiesbaden, 1850, to do homage to the Count of Chambord. On that occasion, he was openly spoken of as the future minister of Henry V. When Changarnier was removed from his command, B. united with Thiers and others to oppose the pretensions of the president, and he was one of the few who boldly protested against the *coup d'état*. In 1854, he was elected a member of the French Acad. His inaugural speech contained some uncomplimentary allusions to the lower empire, and its publication was prohibited, the prohibition, however, being removed in 24 hours. B. added greatly to his reputation as an orator by his defense of Montalembert (q.v.) against the government prosecution, 1858, Nov.

BERSAGLIERI: the riflemen or sharpshooters of the Italian army. After the disastrous campaign of Charles Albert against the Austrians in 1848-9, and the abdication of that monarch, his son, Victor Emmanuel, commenced a remodelling of the Sardinian army. One improvement, brought about by General Alessandro della Marmora, was the formation of a corps of B. These were light active soldiers, dressed in a picturesque but serviceable dark-green uniform, and armed with long rifles. Two battalions of these riflemen formed part of the Sardinian army during the Crimean war. During the Italian war of 1859, the B. were engaged in many operations requiring dash and brilliancy. There are over 40,000 in the regular army.

BERSERKER, *bér'ser-ker* [*ber*, bare, and *serkr*, shirt of mail]: a redoubtable hero in Scandinavian mythology, grandson of the eight-handed Starkader and the beautiful Alfhide. He despised mail and helmet, and, contrary to the custom of those times, went always into battle unharnessed, his fury serving him instead of defensive armor. By the daughter of King Swafurlam, whom he had slain in battle, he had twelve sons, who inherited the name of B., with his warlike fury.

BERT—BERTHELOT.

BERT, *bér*, PAUL: French statesman and physiologist: 1833, Oct. 19—1886, Nov. 11; b. Auxerre, France. He studied in Paris, abandoned the pursuit of law for that of medicine, and was prof. of physiology in the Faculty of Sciences at Paris. He entered political life as a republican, after Sedan, and filled important offices in the dept. of the North. He became a member of the chamber of deputies 1874, June 9, and took special interest in education. He introduced laws removing primary instruction from control by the religious orders, and making it compulsory. Under Gambetta as premier, B. was minister of public instruction and worship 1881. Notwithstanding his arduous political and educational work, B. continued to apply himself to experiments in physiology, and with the greatest success, drawing world-wide attention by his experiments in vivisection. His works were numerous on scientific subjects, and he wrote much on educational and political themes. In 1886 he was appointed gov. of Tonquin and Anam, but died there the same year.

BERTH, *n. bérth* [AS. *beorgan*, to protect, to shelter: OE. *barth*, a shelter for cattle; *barthless*, houseless]: a place of shelter; a place to sleep in; a space boarded off in a ship to lie or live in; the clear space or position of a ship at anchor, including a small breadth of sea all round her. TO GIVE A WIDE BERTH, to leave considerable room for; to keep at a distance.

BERTHA: name of several famous women in the middle ages, half-historical, half-fabulous (see BERCHTA).

St. BERTHA, whose day is kept July 4, the beautiful and pious dau. of Charibert, King of the Franks, married (560) Æthelbert, King of Kent, and became the means of his conversion, and of the spread of Christianity among the Anglo-Saxons.

In the romances of the Charlemagne cycle, there figures a BERTHA, called also Berthrada with the Big Foot, dau. of Count Charibert of Laon, wife of Pepin the Little, and mother of Charlemagne.

In the romances of the *Round Table*, BERTHA is the name of a sister of Charlemagne, who makes Milo d'Anglesis the father of Roland.

Better known is BERTHA, daughter of Burkhard, Duke of the Alemanni, and wife of Rudolf II., King of Burgundy beyond Jura, who, after Rudolf's death (937), acted as regent for her infant son, Konrad; afterwards married Hugo, King of Italy; and died towards the close of the 10th c. This queen had the character of an excellent housekeeper, and is represented on seals and other monuments of the time as sitting on her throne spinning.

BERTHELOT, *běrt-lō'*, PIERRE EUGÉNE MARCELLIN: French chemist: 1827, Oct. 25—————; b. Paris. After passing through the ordinary studies, he made a specialty of chemical science, with such success that he was appointed (1859) prof. of organic chemistry in the École de Pharmacie, Paris; and 1865 received a professorship in the Collège de France. In 1876 B. was made inspector-general of higher education, and minister of

BERTHIER.

public instruction 1886. He is noted for his investigations in regard to alcohols, explosives, and the less-known phenomena of heat, in particular having made himself an authority in regard to the action of carbon under different conditions. His work in discovering how to produce organic substances artificially has been quite unrivalled. B. made important discoveries also in regard to the illuminating power of gas, and one of his inventions was a gas thermometer designed for reading high temperatures with great accuracy. He has published *La Synthèse Chimique*, and other works.

BERTHIER, *bě'r'te-ā*, ALEXANDRE, Prince of Neuchâtel and Wagram, and Marshal of the French Empire: 1753, Nov. 20—1815, July 1; b. Versailles. His father, a military engineer, trained him for the army, which he entered 1770, and fought with Lafayette in the American War of Independence. At the outbreak of the French Revolution, he was appointed maj.gen. of the National Guard of Versailles, and rose to be a gen. of division, and chief of the staff in the army of Italy, 1795; and in 1798, in the absence of Bonaparte, entered the papal territory, and proclaimed the republic in Rome. He accompanied Napoleon to Egypt in the same year as chief of the staff, a post which he held in all the subsequent campaigns. At the revolution of 18th Brumaire (1799), he became war-minister, and (till 1808) as such signed many important treaties and truces. He always accompanied the emperor, and often rendered important services; for the part he took in the battle of Wagram, he received one of his many distinctions. B. was Napoleon's proxy in the marriage of Maria Louisa, at Vienna, 1810. In the campaigns of 1812, 1813, 1814, he was constantly by the emperor's side, and acted both as chief of the staff and as quartermaster-general. It was only B.'s love of order, quick insight, and activity that could have superintended the movements of so many armies. Napoleon did him full justice on this score, asserting at the same time that he was incapable of leading the smallest *corps d'armée* alone.

On the fall of Napoleon, B. hardly showed due gratitude for the favors heaped upon him. He had to surrender the principality of Neuchâtel; and not to lose more, he submitted to Louis XVIII., who made him a peer and marshal, with the title of Captain of the Guards. Napoleon, who never doubted his secret attachment, made overtures to him from Elba; these he neither answered nor yet revealed to Louis, which made him suspected by both. On the return of Napoleon from Elba, in a fit of irresolution B. retired to Bamberg, in Bavaria, to his father-in-law, Duke William, where his mind became unhinged with the conflict. While looking from the balcony of the palace at a division of Russian troops marching towards the French frontier, the bitter sight was too much—he threw himself down into the street, and thus ended his life. His *Mémoires* appeared 1826. He had two brothers, Victor Leopold, and Cæsar, who both served with distinction, and rose to be generals,

BERTHOLLET, *bër-to-lā'*, COUNT CLAUDE LOUIS: 1748, Dec. 9—1822, Nov. 7; b. Talloire, a village of Savoy, near Annecy. He studied at the Univ. of Turin, and obtained a medical degree, 1768. He afterwards went to Paris, where he was appointed physician to the Duke of Orleans. He applied himself with great assiduity to chemistry; in 1781, he was elected a member of the Acad. of Sciences, and, later, the government made him supt. of dyeing processes. In this situation he published a very valuable work on dyeing. In 1785, he announced his adherence to the anti-phlogistic doctrines of Lavoisier, with the exception that he did not admit oxygen to be the acidifying principle, and herein he has proved to be right. In the same year, he published a paper on 'dephlogisticated marine acid'—now called chlorine—pointing out its use for bleaching purposes; and following up the experiments of Priestley, he showed ammonia to be a compound of three volumes of hydrogen gas and one volume of azotic gas. During the early part of the French Revolution, B travelled through the country, giving instruction as to the best means of extracting and purifying saltpetre to be used in the manufacture of gunpowder, and also as to the process of smelting and converting iron into steel. His joining the expedition of Napoleon to Egypt led to the formation of the Institute of Cairo.

BERTILLON, ALPHONSE: a French anthropologist; b. 1853; known as the founder of a system of measurements for the identification of criminals. The system depends on three points: Absolute fixity of the human skeleton after twenty years of age, great diversity of the human skeleton, and the ease of measuring these diversities. Bertillon observed that no two persons could be found whose bodies would be identical in measurement in all their parts, and that a man, after being measured, might return one, five, ten, or fifty years later and his identity would stand revealed. This system has been adopted by the police authorities of the large cities of Europe and the U. S.

BERTIN, LOUIS FRANÇOIS, called Bertin l'Ainé: 1766—1841, Sep. 13; b. Paris: French journalist. He began writing for the press, 1793, and, 1799, set on foot the *Journal des Débats* (q.v.). B's royalist principles offended the government of Napoleon, and cost him imprisonment and banishment to Elba; whence, however, he escaped to Rome, where he formed a friendship with Châteaubriand. In 1804, he returned to Paris, and resumed the editorship of the *Débats*, but was much hampered by Napoleon, who imposed on the paper the title of *Journal de l'Empire*, and by subjecting it to police revision gave it almost an official character. When B., in 1814, became free to follow his own bent, the journal reverted to its royalist principles. During the Hundred Days, it fell into other hands, till the return of the Bourbons restored it once more to B., who, in the mean time, had taken part in the *Moniteur de Gand*. Throughout the restoration, B. gave almost constant support to the ministerial party. Though he did not join in the protest of the liberal journals against the *ordon-*

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nances, he gave his adhesion to the July monarchy, and continued faithfully to support it. He continued to edit the *Débats* till his death.

BERTIN, *běr-tǎng'*, LOUIS MARIE ARMAND: 1801-1854, Jan. 11; son of Louis François; b. and d. Paris. After the restoration he was sec. to Châteaubriand during his embassy in England. In 1820, he joined the editorial staff of the *Journal des Débats*, and at his father's death assumed the chief direction. As a journalist, he contrived, as well as his father, to maintain a certain independence of the government.

BERTINORO, *běr-ti-no'ro*: town of Italy, province of Forlì, formerly belonging to the Papal States, six m. s.e. from Forlì, pleasantly situated on a hill, the slopes of which are famous for their wines. At the foot of the hill, to the w., flows the Ronco. B. is the seat of a bishop, and has a cathedral, three other churches, and five convents. It was one of the ancient fiefs of the Malatesta, by whom it was given to the church. Pop. of town, 2,000; of commune, 6,000.

BERTRAND, HENRY GRATIEN, Count: 1773-1844, Jan. 31; b. and d. Châteauroux: one of Napoleon's generals, known for his faithful attachment to the emperor through all his fortunes. He early entered the armies of the Revolution as engineer. He accompanied the expedition to Egypt, and directed the fortification of Alexandria. Returning with the rank of gen. of brigade, he distinguished himself at Austerlitz, and became the emperor's adjutant; and, after the battle of Aspern, 1809, for establishing bridges over the Danube, he was created count and gov. of Illyria. After sharing with credit in the subsequent campaigns, he retired with the emperor to Elba, was his confidant in carrying out his return to France, and finally shared his banishment to St. Helena. On Napoleon's death, B. returned to France, where, though sentence of death had been pronounced upon him—a sentence which Louis XVIII. had wisely recalled—he was restored to all his dignities, and, 1830, appointed commandant of the Polytechnic School. He formed part of the expedition which, 1840, brought back the remains of Napoleon to France.

BERVIC, *ber-věk'*, CHARLES CLEMENT BALVAY: 1756, May—1822, Mar. 23; b. Paris. In 1790 he made himself famous by a full-length engraving of Louis XVI., from the picture by Callot, one of the finest works of the kind ever produced. The engravings of the *Laocoon*, Regnault's *Education of Achilles*, and Guido's *Rape of Deianira*, also from B's graver, show equal beauty of manipulation, with a higher power.

BERWICK, *běr'rik* or *běr'wik*, JAMES FITZ-JAMES, Duke of: 1670—1734: the natural son of James II., by Arabella Churchill, sister of the Duke of Marlborough. He was born in France, where he was educated, and entered the army. After serving in Hungary under Charles of Lorraine, he returned to England shortly before the revolution of 1688,

BERWICK—BERWICK-ON-TWEED.

which he exerted himself to prevent. In 1689, he accompanied his father in his Irish expedition, and after the death of St. Ruth had the nominal chief command. He next served in Flanders, under Marshal Luxembourg, afterwards under the Duke of Burgundy and Marshal Villeroi. In 1706, he was created a marshal of France, and sent at the head of an army to Spain, where he established the throne of Philip V. by the decisive victory of Almanza. For this important service, he was made a grandee of Spain, under the title of Duke of Liria and Xerica. After several years of inactivity, he received the command, 1734, of an army intended to cross the Rhine. While besieging Philipsburg, he was killed by a cannon-ball. Contemporary testimony, confirmed by his military conduct, shows B. to have possessed some of the best qualities of a great commander. His defensive campaign in 1709, in Provence and Dauphiné, against the superior force of the Duke of Savoy, has always been regarded as a triumph of strategic skill. He was twice married. His son by the first marriage succeeded to the dukedom of Liria; his dukedom (De Fitz-James) and estates in France passed to his children by the second marriage.

BERWICK, NORTH: seaport town in Haddingtonshire, Scot., at the entrance to the Firth of Forth, 19 m. e.n.e. of Edinburgh. Formerly a mere fishing-village, it is now a fashionable watering-place, famous for its golfing links. The parish includes the Bass Rock, North Berwick Law, and the ruins of Tantallon Castle. The castle is graphically described in Scott's *Marmion*. It is an irregular pile, two m. e. of the town, on a high rock, surrounded by the sea on three sides, with a ditch on the land-side, where there was formerly a drawbridge. It was a stronghold of the Douglas family. N. Berwick Law is a conical hill of an elevation of 612 ft., on the s., close to the town. Pop. of town (1881) 1,698; (1891) 2,376.

BERWICK-ON-TWEED, *-twēd*: seaport town at the mouth of the Tweed, 58 m. s.s.e. from Edinburgh, on the frontiers of England and Scotland. The liberties of the borough, called 'Berwick Bounds,' have an area of 8 sq. m., and with Spittal and Tweedmouth form the 'county of the borough of B.' Though long boasting to be neither in England nor Scotland, and still possessing separate quarter-sessions and commission of the peace, it is to all intents and purposes part of the county of Northumberland (the adjoining parts of which formed till 1844 a detached portion of Durham); especially since by the Seats Act of 1885 B. ceased to send two members of its own to parliament, and was for election purposes merged in the county of Northumberland. The history of B. is full of interest, especially in regard to the Border wars, and the struggles of English and Scots to possess the town. The siege by Edward I., 1296, was especially terrible and memorable. The authentic records of B. begin in the reign of Alexander I., 12th c., when it was one of the principal seaports in the kingdom. B. finally passed into the pos-

BERWICKSHIRE.

session of England, 1482. The town has an antiquated and somewhat decaying appearance. It is girded with old fortifications, and has large barracks. Tweedmouth and Spittal (the latter a favorite watering-place), on the s. side of the Tweed, both within the municipality of B. are reached by an old stone bridge, and a magnificent viaduct of 28 arches spans the river, and connects the Northeastern with the North British railway. The shipping belonging to the port in 1880 was 22, tonnage 1,893, and over 500 fishing-boats. A wet dock has been constructed at a cost of £40,000. Of recent years the salmon fishings have improved, but the herring fishing has declined. For the manufacture of agricultural implements B. stands high, and in Spittal there are several large artificial-manure works. It has 20 places of worship, four belonging to Church of England, three to Church of Scotland, four Eng. Presbyterian, four U. P., and five of other denominations; 14 day-schools, including corporation's academy. Public institutions include infirmary and dispensary, museum, literary institute, and subscription library. Pop. (1871) 13,282; (1881) 13,995; (1891) 13,378.

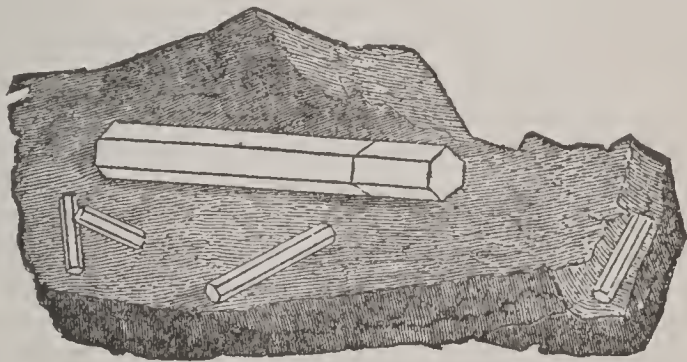
BERWICKSHIRE, *bēr'rik-shēr*: maritime and border county in the s.e. extremity of Scotland; bounded n. by Haddington; s. and s.e. by Roxburgh and Northumberland, having a detached portion of Durham on its s.e. limits; e. by the German Ocean and Berwick-on-Tweed; and w. by Mid-Lothian and Roxburgh. It extends from e. to w. 35 m., from n. to s. 22 m.; 464 sq. m., or 297,161 statute acres. B. is divided into three districts—the Merse, the Lammermoors, and Lauderdale. The largest and most fertile district is the luxuriant valley of the Merse, believed to be the most extensive and richest piece of level land in Scotland, extending to nearly 130,000 acres. The Lammermoors, consisting of 90,000 acres, chiefly pastoral, divide the valley of the Tweed from Mid-Lothian and Haddington. Lauderdale, in extent about 67,000 acres of hill and dale, runs along the banks of the Leader Water. From its commencement at Lamberton to St. Abb's Head, the coast line of B. extends to 8½ m., or allowing for headlands, 9½. The coast is rocky and bold, with only two bays, at Eyemouth and Coldingham respectively. Geologically, as well as topographically, B. has numerous interesting features—the Lammermoors (the principal summits of which are Lammer Law, Crib Law, Sayer's Law, and Clint Hill, ranging from 1,500 to 1,600 ft. high), consist of Silurian strata, stretching to St. Abb's Head: in the s., carboniferous rocks are found, while an extensive bed of red sandstone extends easterly from the centre of the county to the sea-coast. On the coast porphyry is found, and some traps and syenite in the interior. Ironstone and thin seams of coal occur, as well as gypsum, clay, and shell-marl. The streams, Blackadder, Whitadder, and Leader, the river Eye being the only exception, are tributaries of the Tweed. Agriculturally, B. is prominent: in 1881, 194,413 acres were under cultivation, of which 64,217 were under corn crops, and 34,292 under

BERYL.

green crops. In 1875, 192,480 statute acres were farmed by 983 tenants or owners. B. is, however, almost entirely without centres of manufacturing industry. Principal towns are Dunse, or Duns, the most populous, the birthplace of Thomas Boston, Dr. M'Crie, and, as some contend, of Duns Scotus; Greenlaw, the county town; Lauder, a royal burgh; Eyemouth, a prosperous fishing-station; Coldstream, where General Monk first raised the Coldstream Guards; Ayton; and Earlston, the Ercildoune of Thomas the Rhymer. Dunse being more central than Greenlaw, the great bulk of the county business has been transferred thither. Many names famous in Scottish annals are closely associated with B.; among others, ancestors of the royal Stuarts; the noble family of Douglas; the Earl of Bothwell; the Duke of B.; and many Scottish judges. The chief antiquities are the ruins of Dryburgh Abbey, Coldingham Priory, Fast Castle, and the remains of British and Roman camps, and barrows. Pop. (1881) 35,392; (1901) 30,824; parishes, 31; inhabited houses, 7,103; constituency over 1,800; upward of 70 places of worship, of which about one-half belong to the Established Church, and the remaining half is divided between the Free and U. P. denominations. B. returns one member to parliament.

BERYL, n. *běr'íl* [F. *beryl*—from L. *beryl'lus*: Pers. *bulur*, a crystal]: a precious stone of a deep rich green color. **BERYLLINE**, a. *běr'íl-ín*, like the beryl; a lapidary's term for the less brilliant and colorless varieties of the emerald. **BERYLLIUM** n. *běr-íl'lí-úm*, an elementary body, a rare metal resembling magnesium, occurring as a silicate in beryl, etc.—also called *Glucinum* (q.v.).

BERYL, *běr'íl*: an aluminium and glucinum silicate; with varieties, Ordinary B. and Precious B. or Emerald (q.v.)—not the Oriental Emerald. The color of B. varies from yellowish through green to blue. The finer varieties, transparent and of beautiful color, are distinguished as



Beryl, in its primary form.

Precious B., sometimes called *Aquamarine*. These occur in crystals similar in form to those of emerald; but the regular hexagonal prism is more frequently modified by truncation on the angles or edges, acumination, etc. The prisms are often long. Their sides are longitudinally striated, often deeply so; but the truncating or terminating planes

BERZELINE—BERZELIUS.

are smooth. The coarser varieties of B. (*Common B.*) are also found crystallized, but often massive. B. occurs chiefly in veins that traverse granite or gneiss, or imbedded in granite; sometimes in alluvial soils formed from such rocks. Common B. is found in a number of places in Europe; Rubislaw, near Aberdeen, is a British locality. The mountains of Aberdeenshire, and those of Mourne in Ireland, yield Precious B., which is also found in several parts of Europe and the United States—very large in N. C. A crystal of B. 32 in. in diam. weighing 2,900 lbs. was found at Grafton, N. H.

BERZELINE, n. *bër'zēl-ĭn* [after *Berzelĭūs*, a Swedish chemist]: a mineral, selenite of copper, occurring in thin dendritic crusts of a silver-white color and metallic lustre. **BERZELITE**, n. *bër'zēl-ĭt*, a name applied to several minerals.

BERZELIUS, *bër-ze'ļĭ-us*, JOHANN JACOB, Baron: 1779, Aug. 20—1848, Aug. 7; b. Westerlösa, in East Gothland, Sweden. While studying for the medical profession at the Univ. of Upsala, he was more attracted by the preparatory natural sciences, especially chemistry. After some medical practice and lecturing, he was appointed (1806) lecturer on chemistry in the Military Acad. of Stockholm, and in the following year prof. of medicine and pharmacy. He was shortly afterwards chosen president of the Stockholm Acad. of Sciences; and from 1818 till his death, held the office of perpetual secretary. The king raised him to the rank of baron; other honors from learned societies were conferred on him; and the directors of the Swedish Iron-works, in consideration of the value of his researches in their particular branch of industry, bestowed on him a pension for life. In 1838, he was made a senator; but he took little part in politics. The field of his activity lay in his laboratory, where he acquired a name of which his country is justly proud. His services to chemistry are too vast to be described here. The science of chemistry, as at present organized, rests in a great measure upon the discoveries and views of B., although in not a few points he has been controverted, or found wrong. His multiplied and accurate analyses established the laws of combination on an incontrovertible basis; and to him we owe the system of chemical symbols. He discovered the elements selenium and thorium, and first exhibited calcium, barium, strontium, columbium or tantalum, silicium, and zirconium, in the metallic form. The blowpipe in the hands of B. became a powerful instrument in the analysis of inorganic substances. The multitude and accuracy of his researches in every branch of chemical inquiry make it difficult to conceive how one man could have accomplished so much. Of his numerous writings, the most important is his *Lärebok i Kemien* (Text-book of Chemistry, 3 vols., Stock. 1808–18), which has since passed through five large editions, on each occasion being almost wholly rewritten. The best-known edition is in 8 vols. (Brussels, 1835). The book has been translated into every European language. His essay *On the Use of the Blowpipe*

BESANÇON—BESANT.

exhausts the subject, while his *Annual Reports on the Progress of Physics, Chemistry, and Mineralogy*, undertaken at the request of the Acad. of Sciences, 1822, have proved very valuable to science. Scarcely less so have been the *Memoirs Relative to Physics, Chemistry, and Mineralogy*, of which he was one of the originators and conductors, and to which, during the 12 years they were published, 1806–18, he contributed 47 original papers.

BESANÇON, *be-zong-sân'* (*Vesontio*): cap. of the French dept. of Doubs, formerly cap. of Franche-Comté; on the river Doubs, which divides it into two parts; about 45 m. e. of Dijon; lat. 47° 14' n., long. 6° 3' e. It was strongly but irregularly fortified by Vauban, the citadel being considered impregnable. Since that time, the fortifications have been extended and strengthened, and B. is now considered one of the strongest military positions in Europe. It was the ancient Vesontio, Besontium, or Visontium, and was a considerable place even in the time of Cæsar, who, B.C. 58, expelled from Vesontio the Sequani, and in the neighborhood of the city gained a victory over Arlovistus. It then became an important Roman military station. In modern times, after undergoing many changes, it finally came into the possession of France, 1674. Several streets and places in B. still bear old Roman names; and in the neighborhood are found ruins of a triumphal arch of Aurelianus, an aqueduct, an amphitheatre, and a theatre which must have been large enough to contain 20,000 spectators. Among the modern structures, the Cathedral and the churches of St. John and the Magdalen, with the Prefecture and the half-Gothic, half-Roman palace of Cardinal Granvella, are most remarkable. B. has considerable manufactures, chiefly watches (of which more than 400,000 are made annually), porcelain, carpets, iron-wire, and beer, and is an important entrepôt for the produce of part of Switzerland and the s. of France. 600,000 bottles of seltzerwater are annually manufactured. Pop. (1901) 55,362.

BESANT, *bé'sănt*, ANNIE: socialist: b. England. She married, 1867, the Rev. Frank Besant, of the Established Church, bro. of the well-known novelist Walter Besant; but her wide departure from orthodox views led to their separation 1873. The following year she became associated with Charles Bradlaugh, and came prominently before the public as a rationalistic writer. In 1875 she commenced delivering atheistic lectures, which she continued till 1880, when she announced her adhesion to Socialism. Then, till 1890, she was prominently identified with the socialistic movement, speaking in meetings, organizing unions, editing a newspaper, etc. For a time she was an efficient member of the London school board. Having joined the Theosophical Soc. 1889, she succeeded Mme. Blavatsky as head of the English branch 1891. She visited the United States and lectured on Social Reform and Theosophy 1891–2–3. She has been before the courts for the alleged immorality of her book, *Fruits of Philosophy* (which she has since repudiated), and in 1889 she lost a suit for libel.

BESANT—BESEECH.

BESANT, *bě'sănt*, Sir **WALTER**: b. Portsmouth, England, 1838: novelist. He was educated at King's Coll., London, and Christ's Coll., Cambridge, and graduated with mathematical honors. Abandoning his original intention of taking clerical orders, he was appointed to a professorship in the Royal Coll. of Mauritius; but ill health compelled him to resign that post and return to England. He then adopted literature as a profession; and his first book, *Studies in Early French Poetry*, was pub. 1868; 1870 appeared his *French Humorists*. Other works of B. containing the fruit of his studies of French literature are: *Rabelais* (1877), in the series of *Ancient and Foreign Classics*; *Readings from Rabelais* (1879); and *Coligny* (1879), the latter belonging to the *New Plutarch Series*, of which B. is one of the editors. He entered into a literary partnership with James Rice 1871; their first novel, *Ready Money Mortiboy* (1872), was followed by *My Little Girl*; *With Harp and Crown*; *This Son of Vulcan*; *The Golden Butterfly*; *The Monks of Thelema*; *By Celia's Arcor*; *The Chaplain of the Fleet*; *The Seamy Side* (1881). James Rice died 1882. Since then, Mr. B. has written: *All Sorts and Conditions of Men*; *The Captain's Room*; *All in a Garden Fair*; *Dorothy Forster*; *Children of Gibeon*; *The World Went Very Well Then*; *Herr Paulus*; *The Inner House*; *The Lament of Dives*; *The Bell of St. Paul's*; *For Faith and Freedom*; *Armored of Lyonesse*. As a writer of fiction, B. shows knowledge of very many different phases of life, grasp of character, constructive skill, and humor at once shrewd and genial. In many of his novels, he has in view schemes of philanthropy and social reform, notably in *All Sorts and Conditions of Men*, in which is described a 'People's Palace'—now happily realized in the institution of that name in the e. end of London. B. has for several years been sec. to the Palestine Exploration Fund, and was first chairman of the London Incorporated Soc. of Authors. He was knighted 1895. D. 1901.

BESANTS, n. plu.: see **BEZANTS**.

BESCREEN, v. *bě-skrēn'* [*be*, and *screen*]: in *OE.*, to cover, as with a screen; to shelter.

BESEECH, v. *bě-sēch'* [*OE. besecke*; *AS. be*, and *secan*, to seek]: to seek something from a person; to ask for earnestly; to entreat; to implore. **BESEECH'ING**, imp. **BE-SOUGHT**, pp. and pt. *bě-sawt'*. **BESEECH'ER**, n. one who. **BESEECH'INGLY**, ad. *-lī*.—**SYN.** of 'beseech': to entreat; solicit; implore; ask; beg; request; supplicate; adjure; crave.

BESEEK—BESOM.

BESEEK, v. *be-sēk'* [*be*, and *seek*]: OE., for beseech.

BESEEM, v. *bě-sēm'* [*be*, and Icel. *saema*, to be fitting; Ger. *geziemen*; Dut. *betamen*, to be fitting, to become]: to become; to befit; to be decent for. **BESEEM'ING**, imp.: ADJ. becoming. **BESEEMED**, pp. *bě-sēmd'*. **BESEEM'INGLY**, ad. *-lī*, fitly; becomingly.

BESEEN, v. *bě-sēn'* [*be*, and *see*]: OE. pp. of **BESEE**, adapted; becoming.

BESET, v. *bě-sēt'* [AS. *besettan*: *be*, and *sēt*]: to place in and around; to surround; to inclose; to press on all sides; to perplex. **BESET'TING**, imp.: ADJ. habitually attending. **BESET'**, pt. pp.—SYN. of 'beset': to encompass; encircle; surround; inclose; environ; besiege; embarrass.

BESHREW, v. *bě-shrō'* [AS. *be*, about; *searwan*, to lay snares, to entrap]: in OE., to ensnare; to circumvent; to deceive; to curse; as a milder form of imprecation.

BESIDE, prep. *bě-sīd'* [AS. *be* for *bi*, by; *sidan*, a side]: by the side; at the side of a person or thing; over and above. **BESIDES**, prep. *bě-sīdz'*, over and above: AD. or CONJ. more than that; moreover. **BESIDE HIMSELF**, out of his wits.—SYN. of 'beside': also; besides; except; moreover; too; likewise; unless.

BESIEGE, v. *bě-sēj'* [AS. *be*; F. *siège*, a siege, a seat]: to surround any place with soldiers, as a city or town, in order to take possession of it by force; to beset. **BESIE'GING**, imp.: ADJ. employed in a siege; surrounding with armed forces. **BESIEGED**, pp. *bě-sējđ'*. **BESIE'GER**, n. one who. **BESIEGE'MENT**, the act of besieging; the state of being besieged.—SYN. of 'besiege': to beset; to encompass; invest; block up; hem in; environ; beleaguer.

BESIEGING: see **SIEGE**.

BESIT, v. *bě-sīt'* [AS. *be*, about, and *sīt*]: in OE., to suit; to become.

BESLAVER, v. *bě-slāv'ēr*: to slaver; to defile with slaver.

BESLERIA, n. *běs-lē'ri-a* [named after *Basil Besler*, apothecary at Nuremberg, joint editor of a sumptuous botanical work]: genus of the *Scrophulariaceae* (Figworts). The species are ornamental, and several of them have been introduced from the West Indies and S. America.

BESLOBBER, v.: to beslaver.

BESMEAR, v. *bě-smēr'* [*be*, and *smear*]: to cover all over; to soil with dirt. **BESMEAR'ING**, imp. **BESMEARED**, pp. *bě-smērđ'*.

BESMIRCH, v. *bě smērč'*: to defile with mud, filth, or the like.

BESOM, n. *bě'zŭm* [AS. *besem*—from *besmas*, rods: Ger. *besen*]: a bundle of twigs or rods for sweeping with; a large brush of birch or hair for sweeping; a broom: V. to sweep. **BE'SOMING**, imp. **BESOMED**, pp. *bě'zŭmd'*.

BESORT—BESSARABIA.

BESORT, *v.* *bě-sört'* [*be*, and *sort*]: in *OE.*, to sort out or arrange suitably, to suit; to become: *N.* suitable company; attendance.

BESOT, *bě-söt'* [*AS. be*; *Ger. satt*, full: *F. sot*, dull, gross]: to stupefy; to make dull or senseless. **BESOTTING**, *imp.* **BESOT'TED**, *pp.* in *OE.*, doted on: **ADJ.** infatuated; stupefied. **BESOT'TEDLY**, *ad.* -*ě*. **BESOT'TEDNESS**, *n.* stupidity; infatuation. **BESOT'TINGLY**, *ad.* -*ě*.

BESOUGHT: see under **BESECH**.

BESPANGLE, *v.* *bě-spǎng'gl* [*AS. be*; *Gael. spang*, anything sparkling: *Dut. spang*, a spangle]. to adorn with spangles; to cover with glittering objects. **BESPAN'GLING**, *imp.* **BESPANGLED**, *pp.* *bě-spǎng'glǎ*.

BESPATTER, *v.* *bě-spät'tir* [*Dut. bespatten*, to splash: *be*, and *spatter*]: to sprinkle with water or mud; to dirty by throwing or scattering filth; to cover or asperse with slanders or reproaches. **BESPAT'TERING**, *imp.* **BESPAT'TERED**, *pp.* -*těrd*.

BESPEAK, *v.* *bě-spěk'* [*AS. be, by*; *sprecan*, to speak: *be*, and *speak*]: to address or speak; to speak for beforehand; to engage for a future time; to forebode; to show. **BESPEAK'ER**, *n.* one who. **BESPEAK'ING**, *imp.* **BESPOKE**, *pt.* *bě-spōk'*. **BESPOKEN**, *pp.* *bě-spō'kn*.

BESPET, *v.* *bě-spět'*, or **BESPIT**, *v.* *bě-spit'* [*be*, and *spit*]: in *OE.*, to daub or besmear with spittle.

BESPREAD, *v.* *bě-sprěd'* [*AS. be*; *Dut. spreeden*; *Dan. sprede*, to spread or scatter]: to spread about or over; to cover over. **BESPREAD'ING**, *imp.* **BESPREAD'**, *pp.*

BESPRENT, *v. pp.* and *a.* *bě-sprěnt'* [*AS. besprengan*]: in *OE.*, besprinkled.

BESPRINKLE, *v.* *bě-sprīng'kl* [*AS. be*; *Dut. sprengelen*, to sprinkle]: to scatter over. **BESPRIN'KLING**, *imp.* **BESPRIN'KLED**, *pp.* -*kld*.

BESSARABIA, *bes-sa-rā'be-a*, or *bes-sā-rā'be-ā*: govt in the s.w. of Russia, on the Roumanian frontier. The area, enlarged by the restoration, 1878, of the portion ceded to Moldavia 1856, is about 18,000 sq. m.; the population is composed of Russians, Poles, Wallachians, Moldavians, Bulgarians, Greeks, Armenians, Jews, Germans, and Tatars, with a sprinkling of gypsies. The Dniester flows along the whole of its n. and e. boundaries; the Pruth separates it from Moldavia on the w.; and it has the Danube on the s. B. is intersected by several considerable streams, which are much reduced by the summer heats. The climate is, on the whole, mild and salubrious. In the n.w. the country is traversed by well-wooded offshoots of the Carpathian Mountains. Generally, however, B. is flat and fertile, but for want of proper cultivation the land does not yield the rich returns it is capable of doing. Wheat, barley, and millet are raised to some extent, as well as hemp, flax, tobacco, fruit, and wine; but the breeding of cattle is the chief business of the inhabitants. Salt, cattle, wool, and tallow are exported; leather, soap, and candles are manufactured. B., which fell under the

BESSARION—BESSEL.

power of the Turks, 1503, suffered heavily in all wars with Russia, and was ceded to Russia, 1812. By the treaty of Paris, the portions of B. lying along the Pruth and the Danube—about 4,000 sq. m. with some 200,000 inhabitants, were assigned to Moldavia; at the Berlin Congress, 1878, this region was again transferred to Russia. Pop. of B. (1897) 1,933,436.

BESSARION, *bes-sa'ri-on*, JOHANNES, or BASILIUS 1395–1472, Nov. 19; b. Trebizond, on the Black Sea: one of the earliest of those scholars who, in the 15th c., transplanted Greek literature and philosophy into the west, and rescued the mind of Christendom from the trammels of scholasticism. B. imbibed his love of Plato's writings from his tutor, Gemistus Pletho. As Bp. of Nicæa, B. accompanied the Greek emperor, John Palæologus, to Italy; and effected, at the Council of Florence, 1439, a brief union between the Greek and the Roman Churches. Soon afterwards, he joined the Roman Church, but always retained a glowing love of his native land. He was made cardinal by Pope Eugene IV., 1439. Ten years later, Nicholas V. created him Cardinal-bishop of Sabina, and in the same year Bp. of Frascati. For five years, also, he discharged the duties of papal legate at Bologna. After the fall of Constantinople, B. visited Germany; and at the diets of Nuremberg, Worms, and Vienna, endeavored to promote a crusade against the Turks. In philosophy, he professed to be a follower of Plato, but without depreciation of Aristotle. His writings, consisting of Latin translations of Greek authors, defensive treatises on the Platonic philosophy, with discourses and letters, have never been published collectively. Twice he was nearly elected pope; but his partiality for the heathen philosophy was probably regarded as some disqualification by the sacred college. B. died at Ravenna, leaving his collection of 600 valuable Greek MSS. to the St. Mark's Library, Venice.

BESSÉGES: industrious and thriving town of France, in the n. of the dept. of Gard, 11 m. n. from Alais; on the river Ceze. A railway connects B. with Alais. There are extensive coal-mines in the neighborhood. Pop. (1881) 10,052; (1886) 9,169; (1891) 10,653.

BESSEL, *běs'sel*, FRIEDRICH WILHELM: 1784, July 22—1846, March 7; b. Minden: astronomer. In 1806, he was, on the recommendation of Olbers, whom he had greatly assisted by his remarkable expertness in calculation, appointed assistant to Schröter at Lilienthal. In 1810, he published his researches on the orbit of the great comet of 1807, which gained the Lalande prize of the Paris Acad. of Sciences. In the same year he was appointed director of the new observatory to be erected by the king of Prussia at Königsberg, and repairing thither immediately, superintended the erection and the mounting of the instruments. The establishment was completed in three years. In 1818, B. published his *Fundamenta Astronomiæ*—giving the results of Bradley's Greenwich observations—a work upon which he had been engaged 11 years. It is of the

highest value to astronomers. His paper on the precession of the equinoxes gained him the prize of the Berlin Acad. After a series of three years' observations he succeeded in determining the annual parallax of the fixed star 61 Cygni (see STARS), an achievement honorable not only as the first of its kind, but for the marvellous skill and patience necessary for its accomplishment. In the years 1824-33, B. made a series of 75,011 observations in 536 sittings, and completed a catalogue of stars (extending to the ninth magnitude) within the zone from 15° n. to 15° s. declination. These were afterward reduced by Weisse. In 1840, B. indicated the probable existence of the planet Neptune, afterward discovered by LeVerrier.

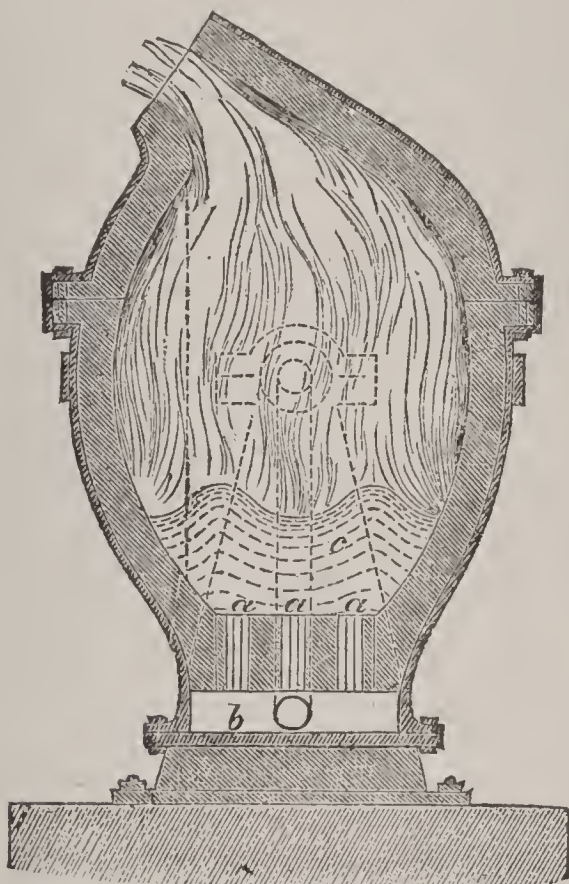
BESSEMER, *běs'sě-měr*: town in Jefferson co. Ala., on the Alabama Great Southern, the Louisville and Nashville, the Georgia Pacific, and the Kansas City and Memphis railroads; 11 m. from Birmingham, the co. seat. It is in a rich iron and coal mining district; and has blast furnaces, foundries, machine shops, planing, wood, and brick mills, and other industries. It has 1 daily and 2 weekly newspapers, and 1 national (cap. \$50,000) and 1 savings (cap. \$100,000) bank. Pop. (1900) 6,358.

BESSEMER: city and cap. of Gogebic co., Mich., on the Chicago and Northwestern, the Duluth, South Shore and Atlantic, and the Wisconsin Central railroads; 40 miles e. of Ashland, Wis. It is an important iron-mining and lumbering region; was founded in 1884, and named in honor of Sir Henry Bessemer. It has become important by reason of its mining and manufacturing and its trade relations with surrounding territory. Pop. (1900) 3,911.

BESSEMER, *běs'sě-měr*, Sir HENRY: inventor: b. Hertfordshire, England, 1813, Jan. 9. He showed great aptitude for drawing and modeling in clay at an early age; studied fine arts, engineering, and mechanics without a teacher; removed to London 1831, and exhibited at the Royal Acad. 1833; invented a series of five machines to do away with manual labor and cheapen the cost of producing bronze powder; and read before the British Assoc. 1856 his first paper on the manufacture of malleable iron and steel (see BESSEMER STEEL). The first recognition of the importance of his discovery was made by the British Institution of Civil Engineers about 1858, when it awarded him the gold Telford medal for a paper describing his process. In 1872 he was awarded the Albert gold medal of the Soc. of Arts; 1877 was elected a member of the Institution of Civil Engineers, and was awarded by it the first Howard quinquennial prize; 1879 was elected a fellow of the Royal Soc., and was knighted by Queen Victoria; and 1880 was presented with the freedom and livery of the Company of Turners, and Oct. 6 with the freedom of the City of London. B. has also invented the stamp with perforated figures, used in the English stamp office, and in many American banks and business houses; the machine for stamping Utrecht velvet; a method of manufacturing specula for reflecting telescopes. He died in London, 1898, March 15.

BESSEMER STEEL.

BESSEMER STEEL, *bēs'sě-mēr* [so named after its inventor]: steel made from cast-iron, mixed with a certain proportion of pure iron, from which all the carbon, etc., has been removed, by exposing the molten mass to a current of air. The Bessemer process, that of Sir Henry Bessemer, patented 1856, is the boldest and most noted attempt yet made to improve on the older methods of making both malleable iron and steel. Bessemer's first idea was to blow air through molten cast-iron till the whole of the carbon was oxidized when malleable iron was required, and to stop the blowing when a sufficient degree of decarburization was effected in order to produce steel. He has hitherto failed to produce malleable iron of the least service by his process, so that, as a metallurgical operation,



Bessemer Converting Vessel:

a, a, a, tuyères; *b*, air-space; *c*, melted metal.

it is at present confined to the manufacture of steel. But neither can serviceable steel be made by the plan first specified by Bessemer, except from the best charcoal iron, such as the Swedish. In England, where charcoal iron is not used for this purpose, the process can be successfully conducted only by first oxidizing the whole of the carbon and silicon, and then restoring the proper amount of carbon by the addition of a small quantity of a peculiar cast-iron of known composition, called *spiegeleisen*. Moreover, until recently, hæmatite pig was the only kind of English iron which could be employed, as that made from clay iron-stone contained too much phosphorus and sulphur.

BESSEMER STEEL.

but by the Thomas-Gilchrist modification of the Bessemer process impure ores can now be employed. See IRON.

The various steps in the Bessemer process, as at present conducted, are as follows: Pig-iron is melted either in a cupola or reverberatory furnace, and run in the liquid state into a converting vessel, such as is shown in section in the figure. This converter, or 'kettle,' as it is called in Sheffield, is of wrought-iron, lined either with fire-brick or with a siliceous material called 'ganister,' and is suspended on trunnions, so as to admit of its being turned from an upright to a horizontal position by means of hydraulic apparatus. The capacity of a converter varies from three to ten tons. In the bottom there are seven tuyères, each with seven holes of one half-inch in diameter, through which atmospheric air is blown with a pressure of from 15 to 25 lbs. per square inch by a blowing-engine. The molten iron in the converter is therefore resting, from the first, on a bed of air, the strength of the blast being sufficient to keep it from falling through the tuyères into the blast-way. During the blowing off of the carbon at this stage, a striking and magnificent effect is produced by the roar of the blast, and the volcano-like shower of sparks and red-hot fragments from the mouth of the converter, as well as by the dazzling splendor of the flame. In 15 or 20 minutes, the whole of the carbon is dissipated. This first 'blow,' being over, the converter is lowered to a horizontal position, and presently a red stream of molten spiegeleisen is run into its mouth, till it amounts to from 5 to 10 per cent. of the whole charge. As already stated, the spiegeleisen restores the proper amount of carbon to produce steel; and after it is added, the blast is again turned on for a few minutes to secure its thorough incorporation. There is a circular pit in front of every two converters, with a hydraulic piston in its centre, and on its counterpoised arm a large ladle is hung, so that it can sweep the whole circumference. Round this the ingot-molds are arranged, and the hydraulic machinery is so conveniently planned that, simply by moving levers, a man standing on a small platform can empty the contents of the huge converters into the ladle, raise or lower the ladle itself, and turn it round from point to point so as to fill the molds by means of a plug in its bottom. Steel made in this way is not sufficiently dense, and accordingly the molds are lifted off the ingots by means of a hydraulic crane, and the latter removed while still hot, and condensed under heavy steam-hammers. After this, they are rolled into rails, tires, plates, and other heavy objects, for which this steel is suitable. Although, as already said, Bessemer steel will not do for tools and cutting instruments, nor even for such comparatively coarse objects as the springs of railroad cars, boiler plate or structural work, it is manufactured extensively for use in rails, ship sheathing, and steel castings. In 1900 the production of Bessemer steel in Great Britain amounted to 1,745,004 long tons; France, 919,283 metric tons; and Spain, 150,634 metric tons. Large quantities were manufactured also in Sweden, Russia, Germany, Belgium, and Italy. See IRON.

BESSEY—BESSIERES.

The following statistics are from the Report of the United States Geological Survey for 1901, and give the total output for that year: Bessemer pig iron, 9,596,793 tons; Bessemer ingots, 8,713,302 tons; and Bessemer rails, 2,836,273 tons.

PRODUCTION OF BESSEMER PIG IRON, TONS OF 2240 LBS.

STATES.	1892.	1899.	1900.	1901.
New York.....	133,723	40,300	28,492
Pennsylvania.....	2,489,730	4,040,965	4,242,397	4,885,877
Maryland	88,224	210,670	260,688	297,149
West Virginia.....	154,793	187,858	169,802	166,597
Ohio	639,183	1,852,965	1,898,663	2,637,091
Illinois	800,661	1,440,169	1,178,241	1,394,430
Other states	137,727	580,151	142,361	187,151
Total.....	4,444,041	8,202,778	7,443,452	9,596,793

PRODUCTION OF BESSEMER STEEL INGOTS.

Pennsylvania.....	2,397,894	3,969,779	3,488,731	4,293,439
Illinois.....	679,592	1,211,246	1,115,511	1,324,217
Ohio	409,855	1,679,237	1,388,124	2,154,846
Other states	480,644	727,092	692,344	940,800
Total.	4,168,435	7,586,354	6,684,770	8,713,302

PRODUCTION OF BESSEMER STEEL RAILS.

Pennsylvania	885,652	1,224,807	1,195,255	1,406,008
Other states	573,080	1,015,960	1,166,666	1,430,265
Total.....	1,458,732	2,240,767	2,361,921	2,836,273

BESSEY, CHARLES EDWIN: an Amer. botanist; b. 1845, May 21; was prof. of botany at the Iowa Agricultural College 1870-84; became prof. of the same subject at the University of Nebraska 1884, and chancellor there 1888-91. In the latter year he became president of the Nebraska Academy of Sciences. He is a member of the American Association for the Advancement of Science. His publications include *Botany for High Schools and Colleges*, *Essentials of Botany*, *Reports of the State Botanist of Nebraska*, etc. In 1892-95 he was editor in charge of the department of botany of *Johnson's Universal Cyclopædia*.

BESSIÉRES, bâ-si-âr', JEAN BAPTISTE, Duke of Istria, Marshal of the French Empire: 1768, Aug.—1813, May 2; b. Preissac, dept. of Lot. After serving for a short time in the constitutional guard of Louis XVI., in 1792, Nov. he entered the army of the Pyrenees as a private soldier. In less than two years, he had attained the rank of captain, and passing into the army of Italy, he distinguished himself greatly in the battles of Roveredo and Rivoli. Having been made chief of a brigade, 1798, he in that year accompanied Bonaparte to Egypt, and was conspicuous at the siege of St. Jean d'Acre, and at the battle of Aboukir. Afterwards, and within five years (1800-05) he was made successively gen. of brigade, gen. of division, and marshal of France. For his gallant behavior in Spain, he was, 1809, created Duke of Istria. In 1813, he received the command of the whole of the French cavalry.

BEST—BESTOW.

BEST, a. *běst* [AS. *betst*, contraction of *betest*: Dut. *best*. Icel. *bestr*]: superl. of *good*; good in the highest degree: AD. in the highest degree; beyond all others: N. the utmost; the highest endeavor, as to do one's best. **AT BEST**, in the most favorable view that can be taken of the matter. **THE BEST**, the highest perfection. **DO THE BEST**, use the utmost power. **MAKE THE BEST**, improve or do to the utmost. **TO MAKE THE BEST OF A BAD BARGAIN**, to endeavor as much as possible to mitigate or lessen loss or injury.

BESTEAD, or **BESTED**, v. *bě-stěd'* [AS. *be*, to make; *stede*, place, position: Dan. *bestede*, to place, to bury]: to place in a position good or ill; to profit. **BEST'ED**, v. in *sporting circles*, to be got the best of. **BESTEAD'**, pp. a. placed; situated; in *OE.*, treated; disposed. **HARD BESTEAD**, placed in a position hard to endure.

BESTIAL, a. *běst'yāl* [L. *bestiā*, a beast (see **BEAST**)]: like a beast; beastly; brutal; filthy. **BESTIALITY**, n. *běst-yāl'ž-tī*, the quality of a beast; an unnatural crime; moral filthiness. **BEST'IALLY**, ad. *-lī*.—**SYN.** of 'bestial': beastly; brutish; brutal; vile; sensual; depraved; carnal.

BESTIAIRES, *bā-tī-ār* [Fr.]: a class of written books of great popularity in the middle ages, describing all the animals of creation, real or fabled, generally illustrated by drawings. They were most in fashion in the 11th, 12th, and 13th c. They served as encyclopedias of the zoology of those ages, but they had also another use. The symbolism which was then so much in vogue fastened spiritual meanings upon the several animals, until every quality of good or evil in the soul of man had its type in the brute world. It is in this way to the B. that we must look for explanation of the strange, grotesque creatures which are found sculptured on the churches and other buildings of the middle ages. There were B. both in prose and in verse, in Latin and in the vernacular. A few sentences from *Le Bestiaire Divin de Guillaume, Clerc de Normandie, Trouvère du XIII^e Siècle* (Caen, 1852), may help to give some notion of the class of works of which it is a fair example, 'The unicorn,' he writes, 'has but one horn in the middle of its forehead. It is the only animal that ventures to attack the elephant; and so sharp is the nail of its foot, that with one blow it rips up the belly of that most terrible of all beasts. The hunters can catch the unicorn only by placing a young virgin in the forest which it haunts. No sooner does this marvellous animal descry the damsel, than it runs towards her, lies down at her feet, and so suffers itself to be taken by the hunters. The unicorn represents our Lord Jesus Christ, who, taking our humanity upon him in the Virgin's womb, was betrayed by the wicked Jews, and delivered into the hands of Pilate. Its one horn signifies the gospel truth, that Christ is one with the Father,' etc.

BESTIR, v. *bě-stēr* [AS. *be*, and *stir*]: to rouse into vigorous action. **BESTIR'RING**, imp. **BESTIRRED**, pp. *bě-stěrd'*.

BESTOW, v. *bě-stō* [AS. *be*, and *stow*, a place]: to lay up in a place; to give; to confer; to give in marriage; to apply; to impart. **BESTOW'ING**, imp. **BESTOWED**, pp.

BESTRADDLE—BETAKE.

bě-stōd. BESTOW'AL, n. the act of bestowing; disposal
BESTOW'MENT, n. the act of giving or conferring. BE
STOW'ER, n. one who.

BESTRADDLE, v. *bě-strād' dl*: to bestride.

BESTREW, v. *bě-strō'* or *bě-strō* [AS. *be*, *streórwian*, to strew: *be*, and *strew*]: to scatter or sprinkle over: see STREW.

BESTRIDE, v. *bě-strīd'* [AS. *be*, *strīdan*, to stride]: to stand with the legs open; to extend the legs across; to stride or step over; to have between one's feet. BESTRID'ING, imp. BESTRID, pt. *bě-strīd'*, or BESTROD, pt. *bě-strōd'*. BESTRIDDEN, pp. *bě-strīd'n*.

BESTUD, v. *bě-stūd'* [*be*, and *stud*]: to adorn with studs or shining points. BESTUD'ING, imp. BESTUD, pp.

BESTUSCHEW, *běs-tō'shēf*, ALEXANDER; abt. 1795–1837, June: Russian novelist; captain in a dragoon regt.; and adjutant to Alexander, Duke of Würtemberg. Having been involved with his friend Rylejew in the conspiracy of 1825, he was degraded to the ranks, and exiled to Yakutzk, but, after long entreaty, permitted to enter the army of the Caucasus as a private, 1830. He was killed in a skirmish with the as yet unconquered mountaineers. Two years before his exile he, together with his friend Rylejew, who was put to death 1825, had published the first Russian almanac, *The Pole Star*. His later works, consisting chiefly of novels and sketches, written under the name of Cossack Marlinski, excel in depicting the wilder aspects of nature and the excitements of a soldier's life, but fail in the delineation of character, and are often exaggerated, and sometimes absurd. His principal works are the tale of *Mullah Nur*, and the romance of *Ammalath Beg*. Several of his novels were translated into German by Seebach (Leipsic, 1837), and his collective works appeared at St. Petersburg in 1840, under the name of Marlinski's Tales.

BESURE, ad. *bě-shōr*: certainly.

BET, n. *bēt* [AS. *bad*; Goth. *vadi*, a pledge: Scot. *wad* or *wed*, a pledge, a bet—from *abet*, in the sense of backing]: money pledged to be given on an event or circumstance as it may fall out; a wager; that which is pledged on a contest: V. to lay a wager. BET'TING, imp. BET'TED, pp. BET'TING, a. in the habit of making bets: N. the proposing or laying of a wager. BETTOR, n. one who bets. *Note*.—BET may be connected with Icel. *both*, an offer: Scot. *bode*, a proffer—see Skeat.

BET, a.: see BETT.

BETA, n. *bā'tā* [Gr.]: second letter of the Greek alphabet.

BETA, n. *bē'tā* [L. *bēta*, the beet—said to be from a Celtic word, *bett*, red, in allusion to the red color of the roots]: a genus of plants; the beet-root, or *Beta vulgāris*, ord. *Chenopodiācēæ*.

BETAKE, v. *bě-tāk'* [AS. *betacan*; AS. *be*, and Icel. *taka*, to take, to deliver]: to take one's self to; to have

BETANZOS—BETEL.

recourse to; to apply. BETAK'ING, imp. BETOOK, pt. *bě ták'*. BETAKEN, pp. *bě-tā'kn*.

BETANZOS, *ba-tăn'thōs* (anciently *Brigantium Flavium*). town of Spain, province of Corunna, 10 m. s.e. of the city of Corunna. Ancient granite gateways still defend its narrow streets. It has manufactures of linen, leather, and earthenware. Pop. (1877) 8,000; (1887) 8,157.

BETEEM, v. *bě-tēm* [in some senses, *be*, and *teem*, to pour forth: in others, Dut. *tēman* or *betēman*, to become, to be fitting: leel. *tīma*, to happen]: in *OE.*, to give; to bestow; to afford; to allow; to deign; to endure.

BETEL, or BETLE, n. *bě'tl* [Port. and F. *betel*: Sp. *betle*: Sks. *patra*]: a narcotic stimulant, much used in the east, and particularly by all the tribes of the Malay race. It consists of a leaf of one or other of certain species of pepper, to which the name of betel-pepper is indiscriminately applied, plucked green, spread over with moistened quicklime (*chunam*), generally procured by calcination of shells, and wrapped around a few scrapings of the areca-nut (see ARECA), sometimes called the betel-nut, and also known as *Pinang*. This is put into the mouth and chewed. It causes giddiness in persons unaccustomed to it, excoriates the mouth, and deadens for a time the sense of taste. It is so burning, that Europeans do not readily become habituated to it, but the consumption in the East Indies is prodigious. Men and women, young and old, indulge in it from morning to night. The use of it is so general as to have become matter of etiquette; a Malay scarcely goes out without his betel-box, which one presents to another as Europeans do their snuff-boxes. The chewing of B. is a practice of great antiquity, and can certainly be traced back to at least B.C. 5th c. It gives a red color to the saliva, so that the lips and teeth appear covered with blood; the lips and teeth are also blackened by its habitual use, and the teeth are destroyed, so that men of twenty-five years of age are often quite toothless. There is difference of opinion whether the use of B. is to be regarded as having any advantages to counterbalance its obvious disadvantages. Sir James Emerson Tennent, in his work on Ceylon, expresses the opinion that it is advantageous to a people of whose ordinary food flesh forms no part, and that it is at once the antacid, the tonic, and the carminative which they require.

The name B. is often given to the species of pepper of which the leaves are ordinarily chewed in the manner just described, which are also called B.-PEPPER or PAWN. Some of them are extensively cultivated, particularly *Chavica Betle*, *Q. Siraboa*, and *Ū. Malamiri*, climbing shrubs with leathery leaves, which are heart-shaped in the first and second of these species, and oblong in the third. They are trained to poles, trellises, or the stems of palms, and require much heat with moisture and shade; upon which account, in the n. of India, where the climate would not otherwise be suitable, they are cultivated with great attention in low sheds, poles being placed for their support at a

BETHANY—BETHESDA.

few feet apart. Hooker mentions in his *Himalayan Journal*, that these sheds are much infested by dangerous snakes, and that lives are therefore not unfrequently lost in the cultivation of betel.—The genus *Chavica* is one of those into which the old genus *Piper* (see PEPPER) has recently been divided. The requisite qualities of B. are probably found in the leaves of numerous species not only of this but of other genera of the same family. The leaf of the Ava (q.v.) is sometimes used.

BETHANY, *beth'a-ne*: a villa of Brooke co., W. Va., about 12 m. n.e. of Wheeling, on Buffalo creek, a tributary of the Ohio river. It has several churches, and is the seat of Bethany College, with six to nine professors and over 100 students. This institution was established 1841 by Alexander Campbell, the founder of the sect of Baptists known as 'Disciples.'

BETHANY, *beth'a-ne*, meaning a 'boat-house,' called 'Lazariyeh,' or 'Town of Lazarus,' by the natives of Palestine, in reference to the event narrated in Scripture (John xi.): a retired spot, beautifully situated on the s. slope of the Mount of Olives, 3 m. from Jerusalem; pop. about 500, principally Latins. There is nothing remarkable about the village except some ruins, among which are some which are said to have been the house of Martha and Mary, and the cave or grave of Lazarus; the descent into which is effected by 26 steps cut in the solid rock, leading to a small chamber, about 5 ft. square, also excavated. Near the cave are the ruins of a fort built by Queen Melisinda, 1132, to protect the nunnery founded by her in honor of Martha and Mary.

BETHEL, *beth'el*, called Betein by the natives: about 10 m. from Jerusalem, mentioned in Scripture as the scene of Jacob's dream. Here also Abraham pitched his tent. It is now a heap of ruins, entirely deserted, except by a few straggling Arabs.

BETHELL, *beth'el*, The RIGHT HON. RICHARD (BARON WESTBURY): 1800–1873, July 20; b. Bradford, Wiltshire; son of a physician at Bristol: English lawyer. From Bristol grammar-school, he went, at the age of 14, to Wadham College, Oxford, where he was first class in classics, and second class in mathematics, and took his degree of B.A. at the early age of 18. After being a private tutor at Oxford, he studied law, and was called to the bar at the Middle Temple, 1823, Nov. In 1849, he was made a queen's counsel. Elected, 1851, Apr., M.P. for Aylesbury, on the formation of the Aberdeen ministry (1852, Dec.) he was named solicitor-gen. and shortly after knighted. From 1856, Nov., to 1858, March, he was attorney-gen. In 1861, he was made lord chancellor, and at the same time raised to the peerage. He resigned the great seal, 1865. B. was conspicuous for his exertions in the cause of law reform, in improving the system of education for the bar, and in abolishing the ecclesiastical courts, etc.

BETHESDA, *be-thez'da*, POOL OF, meaning 'House of Fity:' scene of Christ's cure of the impotent man (Jn. v.



Betel-vine.



Betel-nut.—Leaf, flowers, and
nut of *Areca Catechu*.



Berry.—1. Fruit of Currant; 2,
Section of the same.



Bethlehem.

2-9, and resort of the 'impotent, blind, halt, and withered;' anciently filled with water, is now dry and used as a deposit for dirt and rubbish. The best authorities reject from the account in the Gospel the last phrase of verse 3 and all of verse 4, as probably a later addition to the text. B. is situated within the gates of Jerusalem, near the St. Stephen's gate and the Temple of Omar; measures 460 ft. in length, by 130 in breadth, and 75 in depth.

BETHINK, v. *bě-thĩnk'* [AS. *be*, *thencan*, to think: Dut. *bedenken*, to consider]: to bring or call to mind by reflection; to bring to recollection. BETHINKING, imp. BETHOUGHT, pp. *bě-thawt'*.

BETHLEHEM: village, Grafton co., N. H., 20 m. w. of Mt. Washington, 10 m. from the Connecticut river, 3 m. from Bethlehem station, on a branch of the Boston, Concord and Montreal railroad, about 125 m. n. of Concord. Having a high situation, its air is salubrious, and it commands a fine view, and is one of the chief places of sojourn for visitors to the White Mountains, especially for sufferers from hay-fever. It has the St. Clair House (a fine hotel), besides several large boarding-houses. Pop. (1880) 900; (1890) 1,267; (1900) 1,261.

BETHLEHEM, borough and pleasant summer resort, Northampton co., Penn., on the left bank of the Lehigh river, 6 m. e. of Allentown, about 50 m. n. of Philadelphia. A bridge crossing the Lehigh connects it with South Bethlehem, the seat of Lehigh Univ., a Prot. Epis. institution founded by Asa Packer, 1866, with an endowment of \$500,000. B. has four railroads connecting it directly with New York, Philadelphia, Allentown, and Bath. It was founded by the Moravians, 1741; has two Moravian schools—a seminary for young ladies, and a theological seminary; also a number of newspapers, two banks, a dozen churches, tanneries, breweries, and mills. In its vicinity (mostly in South Bethlehem) are great iron-furnaces, rolling mills, and zinc-works. The latter have been supplied with ore from the famous mines of Friedensville, a small village 5 or 6 m. w., where a 3,000 horse-power engine (for many years the largest stationary engine in the world) was employed in pumping the water out of the mines. Pop. (1890) 6,750; (1900) 7,293.

BETHLEHEM, *beth'le-hem*, or BEIT-LAHAM, meaning 'House of Bread,' celebrated in Scripture as the birth-place of our blessed Saviour, and of King David; now a small unwallled village, 5 m. s. of Jerusalem; pop. abt. 3,000, all Christian—that is, Latin, Greek, and Armenian. The village is in a most interesting country; and the roof of the Latin monastery—the only public building of any importance, enclosing the cave which is the alleged place of Christ's nativity—commands a beautiful and extensive view of the surrounding country: in the distance, e. are the mountains of Moab and the plains of the Jordan; s. stands the hill of Tekoah, the scene of the pastoral life of the prophet Amos; beyond, and rather more to the e., lies

BETHLEHEMITES—BETHLEN-GABOR.

the wilderness of Engedi, to which David retreated for the purpose of concealing himself from the pursuit of Saul, and where the allied armies of the Amorites, Moabites, and others, encamped when they came forth against Jehoshaphat; n. is the road to Jerusalem, with the mountains of Judea and Rachel's tomb. The Convent of the Nativity, which encloses the supposed manger, etc., is a large square building, more resembling a fortress than the quiet habitation of the recluse; it was built by the Empress Helena, 327, but destroyed by the Moslems, 1236, and it is supposed, restored by the Crusaders. Within it is the Church of the Nativity, which, like and in connection with the Church of the Holy Sepulchre at Jerusalem, is subdivided among the Latins, Greeks, and Armenians, each community having a separate portion of the edifice for devotional purposes. The church is built in the form of a cross; the nave, which is by far the finest part of the building, belongs to the Armenians, and is supported by 48 beautiful Corinthian columns of solid granite, each between 2 and 3 ft. in thickness, and about 17 in height. The other portions of the church, forming the arms of the cross, are walled up. At the further end of that section which forms the head of the cross, and on the threshold, is a sculptured marble star, which the Bethlehemites say covers the central point of the earth. Here a long intricate passage descends to the crypt below, where the Blessed Virgin is said to have been delivered. The walls of the chamber are hung with draperies of the gayest colors; and a silver star, with the words, '*Hic de virgine Maria Jesus Christus natus est,*' marks the spot of the nativity. The manger stands in a low recess cut in the rock, a few feet from this star.

The other objects of interest in the church are the chapel and tomb of St. Jerome, who became a monk of this convent towards the end of the 4th c.; the chapel and tomb of Santa Paula, a Roman lady, and the founder of several nunneries at Bethlehem; the tomb of St. Eudisia; and the pit into which it is supposed the bodies of the murdered innocents were cast. B. is under the jurisdiction of the Pasha of Jerusalem. The Bethlehemites gain their subsistence chiefly by the manufacture and sale of crucifixes, beads, boxes, shells, etc., of mother-of-pearl and olive-wood. Much wine is made at B., which is considered all over Palestine next best to the Lebanon wine.

BETHLEHEMITES, *beth le-hem-îts*, or BETHLEHEMITE BROTHERS: an order of monks at Cambridge, Eng., in the 13th c.; also an order founded in Guatemala, 1673.

The followers of Jerome Huss were styled B., from Bethlehem Church in Prague, where their leader preached.

BETHLEN-GABOR, *bět'len-gá'bor* (or, as he would be called in western Europe, GABRIEL BETHLEHEM or BETHLEN, it being a custom in Hungary and Transylvania to make the baptismal follow the family name), King of Hungary; 1580-1629; descended from an ancient and dis-

BETHLEN-GABOR.

tinguished Protestant family of Upper Hungary, which also possessed important estates in Transylvania. He rose to prominence during the troubles which distracted the principality in the reigns of the two Bathories, Sigismund and Gabriel; and on the death of the latter of these unfortunate princes, succeeded (1613), by the aid of the sultan, in being chosen sovereign prince of Transylvania, the House of Austria being at that time in no condition to offer effective opposition. In 1619, when the Bohemians rose in defense of their religious and political rights, they looked eagerly for support to B., who had already gained a wide reputation as a warrior and a champion of Protestantism; and the Transylvanian prince, too glad of such an opportunity to gratify his ambition at the expense of his enemy, Austria, eagerly proffered his support. He accordingly marched into Hungary, took Kaschau, his advance more resembling a triumphal procession than a hostile invasion, and on arriving under the walls of Presburg was greeted with every mark of joy by the citizens. With an army now swelled by Hungarian volunteers to nearly 100,000 men, he pursued his route towards Vienna, driving before him the Spaniards under Bucquoy, and the Austrians under Dampierre; and would doubtless have captured the capital, had not the severity of the season, and the want of provisions, combined with the reinforcement of his opponents, and the defeat of his lieutenant, Ragotski, in Hungary, compelled him to retreat for a time. However, though he retired as far as Kaschau, he did not relinquish his hold of Hungary, of which, by the assembled diet, he had been crowned king at Presburg, 1620, Aug. 25; but, resuming the offensive, on the defeat and death of Bucquoy, before Neuhausel, he recovered the fortresses which the imperialists had retaken, and spread terror and devastation to the gates of Vienna. His allies, the Protestants of Germany, being apparently crushed, B. concluded peace with Ferdinand II., receiving the town of Kasehan, with seven Hungarian counties adjoining Transylvania, the principalities of Oppeln and Ratibor in Silesia, and the dignity of prince of the empire. This treaty, however, was soon broken by the emperor, who thought so favorably of his own situation as to imagine he could violate his agreement with impunity; but he was soon undeceived, for B., raising an army of 60,000 men, invaded Moravia, obtained the solemn renewal of the former treaty, and then retreated homewards. His marriage with Catharine of Brandenburg, 1625, involved him once more in the Thirty Years' War; but he finally retired from the contest in the following year, and thenceforth devoted himself exclusively to the internal affairs of Transylvania. B.'s reign was a glorious and flourishing epoch in the history of the little principality; for not only did the great successes achieved through his military talents give a prestige to its arms, but his protection of science and letters, in both of which he was accomplished, did much to aid the progress of learning. He founded the Acad. of Weissemburg at Karlsburg, and installed there, as professors,

BETHNAL GREEN—BETICK.

Opitz, Alstedt, Biesterfeld, and Piscator.—His brother STEPHEN succeeded him, but was soon compelled to resign the throne.

To the same family of Bethlen belong JOHN and WOLFGANG, both chancellors of Transylvania, and historians.

BETHNAL GREEN, *beth'nāl-grēn*: an eastern suburb of London, in Middlesex, including Victoria Park. Many of the people are silk-weavers. It has a museum, a branch of the one at South Kensington. Pop. (1891) 129,134.

BETHRALL, v. *bē-thrawl'* [*be*, and *thrall*]: in *OE.*, to bring into a state of thrall or slavery; to conquer.

BETHSAIDA, *beth-sā' -ī-da*: on the lake of Galilee, mentioned in Scripture as the city of Peter and Andrew and Philip, now a heap of ruins overgrown with grass.

BETHSHEMESH, *beth-she'mesh* ('House of the Sun,' or 'Sun Town;,' modern name, *Ain-esh-Shems*, 'Fountain of the Sun,' now distinguishable by neither house nor fountain from which it was likely to derive its name): ruined city of Palestine, 15 m. w.s.w. of Jerusalem, finely situated on the point of a low ridge, commanding an extensive view of the country, rendered interesting by the exploits of Samson.

BETHUNE, *bā-tūn'*: town of France, in the dept. Pas-de-Calais; on a rock overlooking the river Brette, and the canals of Lawe and Aire, 16 m. n.n.w. of Arras. It is strongly fortified, part of the works and the citadel having been constructed by Vauban. It has manufactures of linen and cloth, and a considerable trade in the agricultural produce of the surrounding country. Taken by the French 1645, it was retaken by the allies, 1710, but was restored to France by the Treaty of Utrecht. The first artesian wells are said to have been bored here. Pop. (1886) 10,917; (1891) 11,098.

BETHUNE, *bē-thōn'*, GEORGE WASHINGTON, D.D: clergyman of the Reformed (Dutch) Church, scholar and poet: 1805, Mar. 18—1862, Apr. 27; b. New York; son of Divie B., and grandson of Isabella Graham (q.v.). Graduating at Dickinson Coll. 1823, he studied theol. at Princeton, and was ordained to the Presb. ministry. Afterward entering the Reformed Church, he was pastor of the following churches, at Rhinebeck, N. Y., 1827-30; Utica 1830-34; Philadelphia: First Chh. 1834-37, Third Chh. 1837-49; Brooklyn, N. Y., Central 1849-50, Church on the Heights 1850-59; associate pastor 21st St. Chh., New York, 1859-62. Dr. B. was an eloquent orator, a polished scholar, and a genial companion. He died at Florence, Italy. Notable among his many publications are the following: *Early Lost, Early Saved* (1846); *British Female Poets*, with notes biographical and critical (1848); *Lays of Love and Faith* (poems, 1848); *Expository Lectures on the Heidelberg Catechism* (1864). He edited *Walton's Complete Angler* (1846, new ed. 1880).

BETICK, or BETIK, *bēt'īk*: on the river Oxus, central Asia, 'one of the greatest ferries between Persia and Turkestan.' Lieutenant Burnes, who in 1834 published

BETIDE—BETONY.

an account of his travels in central Asia, says the Oxus is here 650 yards broad and 25 to 29 ft. deep.

BETIDE, v. *bě-tīd'* [AS. *be, tidan*, to happen]: to happen; to come to; to come to pass; to befall. BETIDED, pp. *bě-tī'děd*.

BETIMES, ad. *bě-tīmz'*, or BETIME', ad. *-tīm'* [AS. *be* or *bi*, by; *tīma*, time]: before it is too late; seasonably; early; soon.

BET'JUANS, or BECHUANAS, *bet-chó-â'naz*: an extensive nation of s. Africa, occupying the country between 23° and 29° e. long., and extending from 28° s. lat. northward beyond the tropic of Capricorn. The B. are generally of a peaceful, indeed cowardly, disposition, and are divided into many tribes under the government of chiefs, who exercise a kind of patriarchal authority over them. According to Dr. Livingstone, the different tribes take their names from certain animals, 'showing probably that in former times they were addicted to animal worship. The term Bakatla means, "they of the monkey;" Bakuena, "they of the alligator;" Batlápi, "they of the fish;" each tribe having a superstitious dread of the animal after which it is called. They also use the word "bina," to dance, in reference to the custom of thus naming themselves, so that when you wish to ascertain what tribe they belong to, you say, "What do you dance?" It would seem as if that had been part of the worship of old.' Many tribes formerly existing are extinct, as is evident from names that have now no living representatives. The B. have a vague notion of a Supreme Being, but no intelligent idea of his attributes. In all agricultural matters they are very acute. They have a superstitious reverence for a class of impostors calling themselves 'rain doctors,' who profess to be able to bring down rain in dry seasons by a specific composed of disgusting substances.

BETLIS: see BITLIS.

BETOKEN, v. *bě-tō'kn* [AS. *getácnian*, to signify, to betoken—from *ge*, *tácn* or *tácn*, a token]: to show by tokens or signs; to point out something future by a thing known; to indicate; to foreshow. BETOKENING, imp. *bě-tōk'nīng*, showing by a sign. BETOKENED, pp. *bě-tō'kend*.—SYN. of 'betoken': to mark; note; indicate; presage; portend; foreshow; augur; forebode; prognosticate.

BETON, *bět'ŭn*, F. *bā-tawng'* [OF. *betun*, rubble]: French concrete; concrete made after the French manner; called also *béton Coignet*. It is prepared by mixing intimately with hydraulic mortar some inert material as gravel, broken brick or stone, shells, etc. In mixing, every particle of gravel, etc., must be imbedded in mortar; as much water is used as suffices to produce a stiff paste when rammed, without forming a scum on the surface.—

CONCRETE: STONE (ARTIFICIAL)

BETONY, n. *bět'ō-nŭ*, or BETONICA, n. *bě-tōn'ŭ-kă* [originally VETONICA, said to be from the *Vettonēs*, a people of Spain, who discovered it]: a Linnæan genus of plants, of

of various species. The European is *B. officinalis*, family *Labiatae*, medicinal. The Wood Betony of N. Amer. is *Pedicularis Canadensis*, family *Scrophulariaceae*.

BETRAY, v. *bě-trā'* [Ger. *betrügen*, to deceive: AS. *be*; OF. *traïr*; F. *trahir*—from L. *tradĕrĕ*, to give up or surrender]: to deliver up what ought to be kept; to give into the hands of an enemy by treachery; to be unfaithful to a friend; to violate trust or confidence; to mislead; to entrap. BETRAY'ING, imp. BETRAYED, pp. *bě-trād'*. BETRAY'AL, n. act of betraying; breach of trust. BETRAY'ER, n. one who betrays.

BETROTH, v. *bě-trōth'* [AS. *be*, *treōwth*, troth, truth]: to pledge or promise in order to marriage; to contract with the view to marriage. BETROTH'ING, imp. BETROTHED, pp. *bě-trōtht'*. BETROTHAL, n. *bě trōth'āl*, and BETROTH'-MENT, n. a contract or agreement with a view to marriage.

BETROTHMENT, *be-trōth'ment*: a mutual engagement by a man and woman with a view to marriage. This anciently in England consisted in the interchange of rings, kissing, joining hands, and the testimony of witnesses; and the ecclesiastical law punished the violation of such B. by excommunication; but such a spiritual consequence was abolished in the reign of George II. A previous B. had also been regarded as a legal impediment to marriage with another. 'It was not,' says Mr. Macqueen, in his *Treatise on the New Divorce Jurisdiction*, 1858, p. 73, 'by the axe that the promoter of the English Reformation extinguished his marriage with Anne Boleyn. He first carried her into the Ecclesiastical Court, and there obtained a sentence, on the ground of her alleged precontract with Northumberland.' The aggrieved party has the only remedy of an action for breach of promise. In Scotland, when the B. or engagement can be shown to have been a clear, free, and deliberate *present consent* on the part of both the man and woman to form the relationship of husband and wife, such a contract may be enforced against the recusant party; and indeed it constitutes marriage itself. See MARRIAGE: PROMISE: HUSBAND AND WIFE.

BETRUST, v.: to intrust; to give in trust.

BETT, or BET, a. *bĕt* [AS. *bet*]: in *OE.*, better.

BETTER, a. *bĕt'tĕr*, compar. of *good* [AS. *betĕra*; Dut. *bĕt*; mod. Dut. *beter*, better, more: Goth. *batiza*, better]: good in a higher degree; more advanced: AD. with greater excellence; more correctly: V. to improve; to raise higher in the good qualities of. BETTERS, n. plu. *bĕt'tĕrz*, superiors in social rank. BET'TERING, imp. BETTERED, pp. *bĕt'tĕrd*. BETTERMENT, the operation of making better.—SYN. of 'better, v.': to ameliorate; improve; correct; mend; amend; promote; advance; rectify; emend; reform.

BETTERTON, *bet'ter-ton*, THOMAS: 1635–1710, b. and d. London: celebrated actor, for about half a century the chief ornament of the English stage. The best contemporary judges, such as Addison, Cibber, etc., bear ad-

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miring witness to his dramatic powers, which overcame the natural disadvantages of a low voice, small eyes, and an ungainly figure. His private character was highly estimable, cheerful, modest, and generous. After a retirement of many years, it became known that his circumstances were very straitened, and it was determined to give him a public benefit. The spirited veteran (then in his 74th year) appeared, 1709, Apr. 6, with immense *éclat* in the youthful part of Valentine in Congreve's *Love for Love*. He acted several times again. Mrs. B. took the same rank among contemporary actresses as her husband among actors.

BETTING, OR WAGERING: a contract by which two parties or more agree that a certain sum of money, or other thing, shall be paid or delivered to one of them on the happening or not happening of an uncertain event. At common law, wagers are not, *per se*, void, but statutes prohibiting betting have been passed by many of the states. When one loses a wager and gets another to pay the money for him, an action lies for the recovery of the money. Wagers on the event of an election laid before the poll is open, or after it is closed, are illegal. In horse-racing, simple bets upon a race are unlawful both in England and the United States. In the case even of a legal wager, the authority of a stakeholder, like that of an arbitrator, may be rescinded by either party before the event happens. See **POOL: BOOK-MAKING: GAMBLE.**

BET'TOLA: town of n. Italy, province of Piacenza, about 20 m. s.w. of the town of Piacenza; on the river Nure, in a fertile district. Pop. 5,668.

BETTOR: see under **BET.**

BET'ULA: see **BIRCH.**

BETULACEÆ, *bet-û-lă'sê-ě*, or **BETULI'NEÆ:** see **AMEN-TACEÆ** and **BIRCH.**

BETULINE, n. *bět'û-lîn* [L. *betula*; Eng. *-ine*]: a resinous substance obtained from the bark of the Black Birch, *Betula nigra*. It is also called Birch Camphor.

BETWAH, *bět'wâ:* river of India, which, after a n.e. course of 340 m., joins the Jumna on the right, about 30 m. to the e.s.e. of Calpee. It rises in the Vindhya Mountains, which, uniting the West and the East Ghauts at their n. extremities, form the dividing ridge between the basins of the Nerbudda and the Ganges. It runs through beds of iron ore, and waters the towns of Bileah and Jhansi. The source of the B. is in lat. 23° 14' n. and long. 77° 22' e., and its mouth in lat. 25° 57' and long. 80° 17'. It is described as a great river, being, even in the dry season, half a mile wide at its junction with the Jumna. It is, however, not navigable in any part of its course.

BETWEEN, prep. *bě-twēn'* [AS. *betweoh*, in the middle of two—from *be*, by; *twēoh*, two]: in the middle; intermediate; from one to another; noting difference or distinction of one from another. **BETWEEN DECKS**, among *seamen*, the space contained between two decks. **BETWIXT**, prep.

bē-twāxt' [AS. *betweox* or *betwuxt*, by two]: between; in the midst of two.

BEUKELZOOON, WILLIAM: d. 1397: a man in humble life, belonging to the small town of Biervliet, Holland; the first who succeeded in salting and preserving herrings in a satisfactory manner. This improvement, said to have been made in 1386, gave great impetus to the fisheries of Holland. It is related that the emperor Charles V. made a pilgrimage to the tomb of B., and there ate a herring in token of remembrance of the inventor. The derivation of *pickle* from B.'s name, also written Beukels, Bökel, etc., is fantastic.

BEUTHEN, *boy'tén*, or BUTOM: town of Prussian Silesia, 50 m. s.e. from Oppeln, near the Polish frontier. It has manufactures of woolen cloths and earthenware. The language generally spoken is Polish. Pop.(1891) 36,905.

BEVEL, n. *běv'ěl* [OF. *beveau*, an instrument like a pair of compasses; *bureau*, a kind of carpenter's rule: Sp. *baivcl*, a square rule]: an instrument like a square for drawing angles, consisting of two flat slips moving on a pivot: any slope or inclination (see SPLAY): ADJ. angular; crooked; sloped off; slant: V. to slant to any angle other than a right angle. BEVELLING, imp. *běv'ěl-līng*: ADJ. curving or bending from a straight line—said of timber: N. the operation of cutting to a bevel-angle; in *shipbuilding*, the curving or bending of a timber, etc., agreeably to directions given from the mold loft. BEVELLED, pp. *běv'ěld*: ADJ. formed to a bevel-angle. BEV'ELMENT, n. a name used for certain edges or faces formed in mineral bodies. BEVEL-GEAR, -*gēr*, in *mech.*, a species of wheel-work where the axis or shaft of the leader or driver forms an angle with the axis or shaft of the follower or wheel driven: see GEARING. BEVEL-WHEEL, a wheel having teeth to work at an angle either greater or less than half a right angle.

BEVELAND, *běv'e-lānd*, NORTH and SOUTH: two islands in the estuary of the Scheldt, Netherlands, province of Zeeland. South B. is the largest and most fertile, containing 84,000 acres. The chief town, Goes (Hoos), near the n. side, is well built; pop. 5,000. Making salt, leather, beer, candles, oil, chocolate, weaving cottons, and book-printing are the chief industries. South B. produces wheat and other grain, colza, madder, potatoes, and fruit abundantly. Fish are plentiful. Pop. of South B. 23,000. North B. is low and marshy, has an area of 15,250 acres; pop. 6,000, employed with agriculture. Both islands have suffered dreadfully from inundations. In 1532, North B. was completely covered with water, many of the inhabitants perishing, and it remained submerged for several years. At the same time, the flourishing town of Romerswaal was separated from South B., and afterwards so encroached on by the sea, that the whole of the inhabitants had to leave it. The islands also suffered considerably from inundation in 1808. Within recent years, much good has been effected by drainage.

BEVER, n. *běv'ěr* [OF. *bevre*; It. *bevere*—from L. *bibērē*,

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to drink]: in *OE.*, any refreshment taken between regular meals; refreshment of drink: *V.* to partake of refreshments between meals. *BEV'ERING*, imp. *BEVERED*, pp. *běv'rd.* *BEVERAGE*, n. *běv'er-āj* [*F. beverage*: *OF. bovrage*, drink, a beverage]: a liquor for drinking; an agreeable drink.

BEVERIDGE, *běv'er-ij*, *WILLIAM*, Bishop of St. Asaph: 1638–1708, Mar. 5; b. Barrow, Leicestershire. He entered St. John's College, Cambridge, at the age of fifteen, and was noticeable for devotion to the study of oriental languages, a treatise on which he published at the age of twenty. In 1660, having obtained his degree of *M.A.*, he was ordained both deacon and priest. After many excellent preferments he was, 1704, appointed to the bishopric of St. Asaph, having previously refused to accept that of Bath and Wells, on the deprivation of Dr. Thomas Kenn, for not taking the oaths to the government of William III. At his death he left most of his property to the societies for the Promotion of Christian Knowledge, and the Propagation of the Gospel in Foreign Parts. *B.*, who had great learning, showed through life diligence, faithfulness to duty, and a devout piety. His works, which include one on chronology, a collection of canons from the time of the apostles to that when the synod of Constantinople restored Photius, and various sermons and works of a religious kind, were, with his biography, collected and published in 9 vols. 8vo, 1824, by the Rev. Thomas Hartwell Horne.

BEVERLAND, *bev'er-lânt*, *ADRIAN*: b. abt. the middle of the 17th c., at Middelburg, Zeeland; d. soon after 1712.: Dutch scholar who, by several of his writings, but more especially by his unorthodox interpretation of the Fall, caused great excitement among the theologians of his day. Having studied law, visited Oxford Univ., and settled as an attorney in Holland, he published, 1678, his pamphlet, *Peccatum Originale*, which was not only burnt at the Hague, but led to his own imprisonment, and to his expulsion from Utrecht and Leyden. On his return to the Hague, he wrote *De Stolatæ Virginitatis Jure* (The Hague, 1680), which gave still greater offense. Soon afterwards, going to England, he found a supporter in Isaac Vossius, and probably received his degree as doctor of civil law in Oxford. His virulent attacks against several dignitaries of the English Church indicate that he met with much theological opposition in England also. Probably it was the death of his benefactor, Isaac Vossius, 1689, that led him in 1693 to repudiate his earlier writings. He became insane, and appears to have died in England. His works are now mere bibliographical curiosities.

BEVERLEY, *bev'er-lî*: chief town of the E. Riding of Yorkshire, Eng., 1 m. w. of the river Hull, with which it communicates by canal, and 10 m. n.n.w. of the city of Hull. Its trade consists in corn, coal, and leather, and there are several whiting and agricultural implement manufactories. In *B.* is the superb Gothic minster or the Collegiate Church of St. John, ranking next to York min-

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ster among the ecclesiastical structures of the country, and exhibiting different styles of Gothic architecture; the oldest part being of the 13th c. The choir contains the celebrated Percy shrine, of exquisite workmanship. The grammar-school of B. is so old, that the date of its foundation is unknown. B. arose out of a priory founded about 700, and received its name from Beverlac, 'lake of beavers,' from the great number of these animals in a neighboring lake or morass. Pop. (1871) 10,218; (1891) 12,539.

BEVERLOO, *bā-ver-lō'*: village of Belgium, province of Limbourg, 12 m. n.w. of Hasselt. On the extensive heaths near is the permanent military camp for the instruction of the Belgian army.

BEVERLY: city (since 1894), Essex co., Mass., on a small inlet of the ocean, 2 m. n.e. from Salem, with which it is connected by a bridge, 18 m. n.n.e. from Boston, on the Boston and Maine railroad (Eastern Division). It contains a national bank, a weekly paper, an insurance company, and manufactories of woollen goods, cotton, carriages, and shoes. It has a good harbor, and derives considerable benefit from the fisheries. The B. beaches are peculiarly fine, and between B. and Manchester the picturesque 'Beverly shore' is lined with beautiful residences in ornamental grounds, many of them occupied in summer by wealthy Boston families. The value of taxable property in B., 1901, was \$17,112,325; pop. (1870) 6,507; (1880) 8,448; (1890) 10,821; (1900) 13,884.

BEVERWYK, *bā-ver-wīk*: pleasant village in n. Holland, with extensive meadows on one side and well-wooded country-seats on the other, 7 m. n. from Haarlem. Strawberries and vegetables are cultivated for the Amsterdam and Haarlem markets. There is a haven with a branch canal leading to the large canal from the North Sea to Amsterdam. Pop. 4,000.

BEVILE, n. *běv'il* [see BEVEL]: in *her.*, any opening or appearance like a bevel or slant.

BEVY, n. *běv'ī* [It. *beva*, a bevy; F. *bevé*, a flock or brood]: a flock of birds; a company; a number of young women.

BEWAIL, v. *bě-wāl'* [AS. *be*; Icel. *vāla*, to lament]: to lament; to express grief or sorrow for. **BEWAIL'ING**, imp.: ADJ. lamenting. **BEWAILED**, pp. *bě-wāld*. **BEWAIL'INGLY**, ad. *-lī*. **BEWAILABLE**, a. *bě-wāl'ā-bl*, that may be sorrowed for. **BEWAIL'ING** and **BEWAIL'MENT**, n. lamentation; the act of mourning for. **BEWAIL'ER**, n. one who.—**SYN.** of 'bewail': to bemoan; lament; deplore.

BEWARE, v. *bě-wār'* [AS. *bewarian*; Dan. *bevare*; OE. *be*, *war*, wary]: to take care—followed by 'of'; to regard with caution; to avoid. *Note.*—This verb is now used only in the infinitive and imperative, and was in OE. written as two words—*be ware*.

BEWDLEY, *būd'lē* (formerly *Beaulieu*, from its pleasant situation): municipal borough on the right bank of the Severn, in the n.w. of Worcestershire, 14 m. n.n.w. of

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Worcester. It has manufactures of leather, combs, lantern leaves, carpets, and iron and brass wares. The chief transit for goods is by the Severn. Near the town is a public park of 400 acres, with fine groves of elm, oak, and plane. Pop. (1881) 3,088; (1891) 2,876.

BEWEEP, v. *bě-wēp'* [*be*, and *weep*]: in *OE.*, to weep over; to bedew with tears; to weep.

BEWET, v. *bě-wēt'* [*be*, and *wet*]: in *OE.*, to moisten or wet; to bedew.

BEWHORE, v. *bě-hōr'* [*be*, and *whore*]: in *OE.*, to pronounce or call a whore; to prostitute.

BEWICK, *bū'ik*, THOMAS: 1753-1828, Nov. 8; b. Cherryburn, near Newcastle-on-Tyne, Eng.: wood-engraver. Apprenticed to Beilby, an engraver in Newcastle, he was intrusted at the age of 17 with the cutting of the whole of the diagrams in Hutton's treatise on *Mensuration*. He afterwards illustrated Gay's *Fables*, obtaining, 1775, for one of the cuts, the *Old Hound*, the prize which the Soc. of Arts had offered for the best wood-engraving. In 1790, B., who had entered into partnership with Mr. Beilby, completed, with his brother John, who was his pupil, the illustrations for a *General History of British Quadrupeds*, which raised his reputation far above any of his contemporaries, and gained for him the appellation of the reviver of wood-engraving. Considered as works of art, these illustrations are still unrivalled in graphic force of expression and fidelity to nature, though the great mechanical improvements in the art introduced since give superior clearness and delicacy of execution to some of the best cuts of the present day. Assisted by his brother, B. illustrated Goldsmith's *Traveller* and *Deserted Village*, Parnell's *Hermit*, and Somerville's *Chase*; and in 1797 appeared the first vol. of his *History of British Birds*, followed, 1804, by the second. This splendid work was entirely B.'s own, his brother having died 1795. B.'s last work, the unfinished proofs of which he received the Saturday before his death, at Gateshead, is called *Waiting for Death*, and represents, with great pathos and truth, an old worn-out horse. It was designed to assist in the prevention of cruelty to animals. A large cut of a bull—of the Caledonian breed—is considered B.'s *chef-d'œuvre*. B. had many pupils, some of whom became eminent engravers. See *Life* by Thomson (1882), and Dobson (1884).

BEWILDER, v. *bě-wil'dēr* [Ger. *verwildern*, to grow wild or unruly: *bē*, and Icel *villr*, wandering at large]: to wander at large, having missed one's way; to perplex; to puzzle; to lead astray. BEWIL'DERING, imp. BEWIL'DERED, pp. -*dērd*. BEWILDEREDLY, ad. *bě-wil dērd-lī*. BEWIL'DERMENT, n. the state of one bewildered; confusion. —SYN. of 'bewilder': to perplex; confuse; entangle; puzzle; confound.

BEWITCH, v. *bě-wīch'* [AS. *be*, *wiccian*, to be a witch; *wicce*, a witch]: to gain power over by charms or incantations; to please in the highest degree; to fascinate—used often in a bad sense. BEWITCHING, imp.: ADJ. having

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power to charm or fascinate. BEWITCHED, pp. *bě-wíchť*. BEWITCH'ER, n. one who. BEWITCH'ERY, n. *-ěr-ĭ*, irresistible power possessed by any person or thing over a creature; fascination. BEWITCH'INGLY, ad. *-lĭ*. BEWITCH'MENT, n. irresistible power over; fascination.

BEWITS, n. *bě'wĭts*: the leathern straps with which bells are fastened to the hawk's legs.

BEWRAY, v. *bě-rā'* [AS. *be*, *wregan*, to accuse, to discover: Goth. *vrohjan*; Ger. *rügen*, to accuse]: to make manifest the presence of; to give such signs of existence as to attract notice; to show; to discover; to betray. BEWRAY'ING, imp. BEWRAYED, pp. *bě-rād'*.

BEX, *bā*: village in the Swiss canton of Vaud, on the high road to the Simplon, about 26 m. s.e. of Lausanne; remarkable for its extensive salt mines, salt works, and sulphur baths. One of the mines, called *Du Bouillet*, has a gallery 7½ ft. high, and 5 ft. wide, extending horizontally into the mountain more than 2,000 yards. The quantity of salt annually produced at B. is between 1,000 and 2,000 tons. Pop. (1880) 3,958.

BEXAR, *bā'ar*, or *bā-hār'*, SAN ANTONIO DE: town in Texas: see SAN ANTONIO.

BEY, n. *bā* [Turk. *beg*, a prince or chief]: the governor of a Turkish province; a prince; in colloq. usage, a Turkish gentleman. BEY'LIK, the province governed by a bey.

BEYERLAND, *bī er-lānt*: district in s. Holland, bounded s. by the Hollandsch Diep and Haringvliet. The people are engaged in agriculture, have many orchards, and grow flax extensively. An inland shipping trade is carried on in summer. It has several thriving villages, of which Old B. has 5,000 inhabitants; South B., 1,703; and New B., 1,500; the whole canton, 16,000.

BEYOND, ad. prep. *bě-yōnd'* [AS. *begeond*—from *geond*, thither, yonder]: at a distance; at the further side; out of reach; above. TO GO BEYOND, to surpass; to deceive.

BEYROUT, or BEIRUT, *bā'rôt*: *Berothai* or *Berothah* of the Old Test. (2 Sam. viii. 8; Ezekiel xlvii. 16); and the *Berytus* of the Romans: town on the coast of Syria. It was besieged and captured by Baldwin I., King of Jerusalem, 1111; recaptured from the Christians, 1187. In 1197, it again came into the hands of the Christians, and then successively under the Saracen, Seljukian, and Turkish sultans. In course of the operations to support the Turkish claims against the assumed power of the pasha of Egypt, B., in 1840-1, was bombarded by the English fleet under Sir C. Napier, taken, and delivered over to the Turks. There are three castles still standing out in the sea, whose battered walls bear witness to the efficacy of the British cannon. There are no ancient monuments worth visiting.

B. is a flourishing commercial city, in a most picturesque position on the Syrian coast, at the foot of Lebanon, 55 m. from Damascus, and 147 from Jerusalem. It is the chief seaport, market-town, and emporium of all the trade with the shores of Syria, Palestine, and Cilicia. Many European

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merchants are established in B., and there is a branch here of an English bank (the Ottoman). B. supplies the Lebanon, Damascus, and the north of Syria to Antioch and Joppa, with European manufactures and goods. French steamers, carrying mails, leave B. every week for Marseille. British steamers ply regularly between England and B. every fortnight, bringing Manchester manufactures, prints, chintzes, Birmingham and Sheffield cutlery, etc., and returning to England with madder roots, wool, silk, and bitumen. Since 1859, a direct trade has been carried on between B. and the United States, the articles sent to the United States being wool and olive-oil; and since the opening of the Suez canal, a direct eastern trade in spices, indigo, and mocha coffee has sprung up. There is good anchorage in the roadstead, with shelter during stormy weather in the Beyrout river, about 3 m. from the town; and in 1874, \$50,000 was allotted by the authorities for the construction of a harbor. The commerce of B. has of late years very largely increased, the annual value of imports having risen between 1848 and 1888 from \$2,750,000 to about \$9,000,000. The exports rose from a little over \$1,000,000 to about \$3,000,000. About half the total imports are from Great Britain. In 1886, over 4,000 vessels, with a burden of 618,699 tons, visited B. A commercial tribunal, composed of European and native merchants, to adjudicate all mercantile disputes and bankruptcies, has lately been established; and consuls from all nations reside at Beyrout. Ship-building has begun to attract the attention of the natives, who have built and launched at B. several vessels of fifty to eighty tons within the last few years. There are extensive factories in the neighborhood, producing 'Syrian silk,' much esteemed in the London and Lyon markets. In 1859, a line of omnibuses, the first in Syria, was established at B. The natives at first regarded them with astonishment, and crowded from all sides to see them pass. A French company completed, 1862, a good road from B. to Damascus. In 1875, an English company completed an extensive system of water-works, bringing a supply of excellent water from the Nahr-el-kelb, or Dog river, a distance of 9 m. The town has lately been improved by the removal of the walls which formerly surrounded it. From its proximity to the mountains of Lebanon, on which the climate is most agreeable and salubrious B. is an attractive place of residence; and it might rise into importance but for its odious Turkish custom-house arrangements and system of government. A considerable increase in population is due to the settlement, 1860, of numbers of the Christian refugees from Damascus. The majority of the inhabitants are nominally Christian. B. is a seat of successful labor by missionaries from America and Britain. Pop. (1835) 12,000; (1890) 105,400.

BEZA, *be'za*, THEODORE (properly, De Bèze): 1519, June 24—1605, Oct. 13; b. of a noble family at Vezelai, Burgundy; next to Calvin the most energetic and influential of the Genevese reformers. He received an admirable education in Orleans, from Melchior Wolmar, a German,

who was especially learned in the Greek language, and also imbued with the principles of the Reformation, which he communicated to his pupil. As early as 1539, B. became known as a writer of witty and elegant but indecent verses, the publication of which (1548) caused him many bitter regrets in after-days, when his heart was purer. In his twentieth year, he obtained his degree as licentiate of civil law, and went to live in Paris, where he appears to have spent several years in a kind of fashionable dissipation, though he does not accuse himself of any gross profligacy. B. possessed a handsome figure, which, together with his fine talents and good birth, opened to him the most brilliant prospects. Although not a priest, he pocketed the revenues of two benefices, while his income was largely increased by the death of an elder brother. It was the desire of his relatives that he should enter the priesthood, but a private marriage which B. had contracted rendered this impossible. A severe illness now attacked him, during which the folly and sinfulness of his career vividly presented themselves to his conscience; he repented, and on his recovery, in order to avoid the perils and perplexities of his position, he went to Geneva with his wife, 1548, Oct. Shortly afterwards he was appointed Greek prof. at Lausanne, an office which he held for ten years. In 1550, he published with success a melodrama, entitled *The Sacrifice of Abraham*, and delivered lectures on the Epistle to the Romans and the Epistles of Peter to crowded audiences. Out of these lectures ultimately sprang his translation of the New Test. into Latin. In 1559, he went to Geneva, where he became Calvin's ablest coadjutor, and was appointed a theological prof. and pres. of the college. He had already signalized himself by his work *De Hæreticis a Civili Magistratu puniendis*, in which, like many other good but mistaken men, he approved of the burning of Servetus. His diplomatic tact was particularly good. He induced the king of Navarre to exert his influence on behalf of the persecuted French Protestants, and was persuaded by the latter to attend the conference of Rom. Cath. and Protestant divines, at Poissy, 1561. Here his courage, presence of mind, and dexterity made a very favorable impression on the French court. Catharine de' Medicis entertained so high an opinion of his abilities; that she desired him to remain in France. While in Paris, he often preached before the king of Navarre and Condé. On the outbreak of the civil war, he accompanied the latter as a kind of military chaplain, and after his capture attached himself to Coligny. In 1563, he once more returned to Geneva. In the following year, Calvin died, and the care of the Genevese church now fell principally upon his shoulders. He presided over the synods of French Reformers, held at Rochelle 1571, and at Nîmes 1572. In 1574, he was deputed by Condé to transact important business at the court of the Palatinate; and in 1586 measured himself with the Würtemberg divines, especially Jacob Andreä, at the religious conference held at Montbeliard. In 1588, his first wife died, and although verging

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on seventy years of age, he married another—an awkward incident, it must be confessed, of which his enemies, the Jesuits, tried to make a handle; but B., who still retained complete mastery over his faculties, retorted with his accustomed liveliness and skill. Eight years before his death, his calumniators spread the extremely foolish report that B. was dead, and at the last hour had returned to the bosom of the church. The witty patriarch replied in a poem full of sparkling vigor.

B. was thoroughly grounded in the principles of his master, Calvin, in whose spirit he vigorously ruled the Genevan Church for 40 years, exercising the influence of a patriarch. To secure its unity, strength, and permanence, he spared no pains, sacrificing even his personal possessions. By his abundant learning, his persevering zeal, his acute intellect, his fine eloquence, and his impressive character, he rendered it important services. His numerous theological writings, however, are not attractive to posterity, and have almost ceased to be read. The works by which he is best known are his translation of the New Test. into Latin, and his *History of the French Protestants from 1521 to 1563*.

BEZA'S CODEX, or CAMBRIDGE MANUSCRIPT of the New Testament: See CODEX BEZÆ.

BEZANTLER, n. *běz Ńnt'ler* [L. *bis*, twice; Eng. *antler*]: the second antler of a stag.

BEZANTS, *be-zǎnts'*: circular pieces of bullion, generally gold, without any impression, supposed to represent the old coinage of Byzantium, brought home by the Crusaders, hence of frequent occurrence as heraldic charges. B. are generally introduced into the arms of banks, and also into those of individuals who have been specially connected with money. Similar figures, when not colored *or* (gold), or *argent* (silver), are known in heraldry by the general term of *roundels*. A *bezanty cross* is a cross composed of B.; and *bezanty*, or *bezantée*, is the term used when the shield, or any particular charge, is strewn with bezants.

BEZDAN, *běz-dán'*: a market-town of the Austrian empire, in the Hungarian province of Bacs, about 3 m. e. of the Danube, and 12 m. w.n.w. from Zombor. Pop. 8,000.

BEZEL, n. *běz'ěl* [Sp. *bisel*, the basil edge of the plate; F. *biseau*, aslant]: the ledge which surrounds and retains a jewel or other object in the cavity in which it is set.

BEZETHA: see JERUSALEM.

BÉZIERS, *bā-ze-ā'*: city of France, dept. of Herault; lat. 43° 21' n., long. 3° 13' e.; pleasantly situated on a hill, in the midst of a fertile region, at the junction of the Orb and the Canal du Midi, about 38 m. s.w. of Montpellier. It contains some interesting architectural and antique buildings—the principal being the cathedral, a noble Gothic edifice; the churches of La Madeleine and St. Aphrodise; and the ancient episcopal palace. The old citadel has been destroyed, but the walls remain, and form a promenade. B. has manufactures of silk stockings, woollens, gloves,

BEZIQUE—BHADRINATH.

parchment, glass, soap, leather, and much esteemed confectioneries. It has also extensive brandy distilleries, and is the centre of most of the trade of the district. The town is supplied with water raised from the Orb by a steam-engine. Pop. (1881) 42,135; (1891) 42,785; (1901) 52,510.

B. is a place of great antiquity, and contains Roman remains. It is historically interesting in connection with the massacre of the Albigenses, its inhabitants having been indiscriminately put to the sword by Simon de Montfort and the pope's legate, for having afforded protection to the fugitives in 1209. B. suffered also in the religious wars of the 16th century.

BEZIQUE, a. *bā-zēk'* [F.]: a French card-game.

BEZOAR-STONE, *bēz'ōr-stōn* [OF. *bezoar*—from Port. *bezoar*—from Pers. *pad*, expelling; *zahar*, poison]: stony concretion found in the stomachs of goats or antelopes, and formerly much valued for imaginary medicinal virtues, particularly as an antidote to poisons. Concretions of various kinds are found in the stomachs of herbivorous quadrupeds, generally having for their nucleus some small indigestible substance which has been taken into the stomach. Sometimes they are of a radiating structure; sometimes formed of concentric layers; sometimes they are composed principally of superphosphate of lime, sometimes of phosphate of ammonia or magnesia. Other concretions found in the intestines, etc., of various animals are sometimes called bezoar. See CALCULI. The value of a B. being supposed to increase with its size, the larger ones have been sold, particularly in India, for very great prices. In *geol.*, B. is a stony concretion usually composed of concentric layers. In *chem.*, BEZOAR MINERAL, oxide of antimony. BEZOARDIC, *bē-zō-ār'dik*, of or like bezoar. BEZOAR GOAT, kind of gazelle which produces the bezoar.

BEZONIAN, n. *be-zō'nī-an* [F. *besoin*, want]: a person in want; a beggar; a low fellow; a scoundrel.

BHADAR'SA: town of British India, in the chief-commissionership of Oude, on the Tons, 75 m. e. from Lucknow. Here is an eleemosynary establishment, founded by the Nawab Vizier Asaf ud Dowlah, with an endowment of 15,000 rupees a year, the proceeds of which are divided indiscriminately among Mussulman and Hindu religious mendicants. It is under the charge of a Seiad, or descendant of Fatima. Pop. of B. 5,000, of which 2,000 are Mussulmans.

BHADRINATH, *b'hād-rin āi'h'*: town of Gurhwal, in the lieut. governorship of the N.W. Provinces, India; in a valley of the Himalaya, 25 m. s. of the Manah Pass, which leads into Tibet; lat. 30° 44' n., long. 79° 32' e. Its highest point is 10,294 ft. above the sea; while about 12 m. to the w. is a group of summits, called the Bhadrinath Peaks, having the respective elevations of 23,441, 23,236, 22,934, 22,754, 22,556, and 21,895 ft.; the e. also, and the s.w., presenting detached mountains of similar magnitude. B. is on the right bank of the Vishnugunga, a feeder of the Aluknunda, which itself again unites with the Bhageer-

ettee to form the Ganges. The chief attraction of the place is its temple, which, though the existing edifice is modern, is said to be an establishment of great antiquity. This temple overhangs a tank about 30 ft. square, supplied, by a subterranean passage, from a thermal spring in the neighborhood. As ablution in these waters is held to cleanse from all past sins, B. is a grand resort of pilgrims, every year bringing large numbers, but every twelfth year, when a periodical festival is celebrated, collecting fully 50,000. From Nov. to April, the temple and its deity are abandoned even by the attendant Brahmins, on account of the cold.

BHAGAVAD-GĪTĀ (i. e., Revelations from the Deity): title of a religious metaphysical poem, interwoven as an episode in the great Indian epic poem of the Mahābhārata (q.v.). Two hostile armies, the nearly related Kurus and Pāndus, are drawn up ready for battle; the trumpets sound the opening of the combat; and the Pāndu Ardashuna mounts his chariot, which is guided by the Deity himself as charioteer, in the human form of Krishna. But when Ardashuna perceives in the hostile army his relatives, the friends of his youth, and his teachers, he hesitates to commence the struggle, held back by the doubt whether it were lawful for him, for the sake of the earthly gain of reconquering his father's kingdom, to transgress the divinely approved ordinances for the government of the state. Upon this, Krishna sets forth, in a series of eighteen poetic lectures, the necessity of proceeding, unconcerned as to the consequences. In the progress of his long discourse, a complete system of Indian religious philosophy is developed, in which the highest problems of the human mind are treated with clearness of thought and elegance of language. It is impossible to determine when and by whom the work was composed. It is not, however, one of the first attempts of Indian philosophy, for it is rather of an eclectic nature; and before it could have been composed, there must have been a long period of intellectual cultivation in many philosophic schools. It is not unlikely that it was written in the first century after Christ. The work is looked upon with great reverence in India, and has been the subject of numerous commentaries (the best is that of Sridhara-Svāmin, pub. Calcutta, 1832), and it has likewise been translated into various Indian dialects. Five different metrical versions in Hindi appeared in Bombay, 1842; a translation into the Telugu dialect in Madras, 1840; into the Canarese, Bangalore, 1846, etc. The best critical edition of the Sanskrit text is that of A. W. von Sehlegel (2d ed., Bonn, 1846), to which is added a Latin translation. Among the translations is that into English by Wilkins (Lond. 1785), who had the credit of first making the work known in Europe; that into German, by Peiper (Leip. 1834); and the Greek translation by Galanos (Athens, 1848). See W. von Humboldt's treatise, *Upon the Episodes of the Mahābhārata* (Berlin, 1827); and see the B. translated by Telang, forming vol. viii. of *The Sacred Books of the East* (1882).

BHAGULPORE': cap. of a district and division of the

same name in Behar, presidency of Bengal; lat. $25^{\circ} 11' \text{ n.}$, long. 87° e. It stands on the right bank of the Ganges, here 7 m. wide in the rainy season. A seminary for English instruction has been established here by the British government. B. is the headquarters of the troops for keeping in check the Sonthal tribes. In the vicinity of the town are two round towers about 70 ft. in height, of the origin or object of which nothing is known. Pop. of town (1881) 68,238; (1891) 69,106; (1901) 75,760.

BHAGULPORE, the district, contains 4,268 sq. m. It lies s. of Nepaul, in lat. $24^{\circ} 32' - 26^{\circ} 35' \text{ n.}$, long. $86^{\circ} 21' - 87^{\circ} 33' \text{ e.}$ About a fifth is covered by hills, which, stretching to the s.w., connect themselves with the Vindhya Mountains, the grand dividing-ridge between the Nerbudda and the Ganges. Pop. (1881) 1,966,158; (1891) 2,032,696.

BHAGULPORE, the division, has 20,492 sq. m.; pop. (1881) 8,063,160; (1891) 8,582,490.

BHAMO. *b'hâ-mô'*: town of Burmah, on the Upper Irrawaddy, 40 m. to the w. of the Chinese frontier, and 180 to the n.e. of Ava. It contains 1,000 houses, and has round it many populous villages. It is the chief mart of the trade with China, the imports being woolens, cottons, and silks, brought chiefly by caravans. B. has a considerable trade also with the tribes of the neighborhood, who exchange their native produce for salt rice, and a sauce made of dried-fish. There is a British resident, and steamers ply to Rangoon. Pop. est. 2,500.

BHANG: the correct spelling of BANGUE, which see; see also HEMP.

BHANPURA: see BAMPURA.

BHARTRIHARI, *bhâr'trî-hâr'î*: celebrated Indian writer of apothegms. Little is known regarding his life. A legendary story makes him the brother of King Vikramâditya, who lived B.C. 1st c., and relates of him, that, after a wild and licentious youth, he betook himself in later years to the ascetic life of a hermit. His name has been given to a collection of 300 apothegms—whether it be that he actually wrote them, or, as is more probable, that the apothegms were popular works, written by many various authors, but ascribed, according to the Indian custom, to some personage well known among the people in legends and tales. Cheerful descriptions from nature and charming pictures of love, alternate in these apothegms, with wise remarks upon the relations of life, and profound thoughts upon the Deity and the immortality of the soul. Bohlen has published an excellent critical edition (Berlin, 1833), with a supplement, *Variae Lectiones* (Berlin, 1850), as well as a successful metrical translation into German, (Hamburg, 1835). B. has a certain special interest as having been the first Indian author known in Europe, 200 of his apothegms having been translated, 1653, by the missionary, Abraham Roger, in a learned work pub. Nuremberg, under the quaint title, *Open Gates to Hidden Heathenism*.

BHATGAONS, *b'hât-gâ-ôn'*: one of the chief towns of

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Nepaul, about 9 m. s.e. from Khatmandu. It contains a palace of striking appearance, and other notable buildings. It is the favorite residence of the Brahmans of Nepaul, who form the greater part of its inhabitants. Pop. estimated 30,000; but it is supposed to have once contained 60,000 inhabitants.

BHAVANI-KUDAR, *bhâ-vâ'ne-kô-dâr'*, or BHOVANI-KUDAR: town in the presidency of Madras, dist. of Coimbatore, 58 m. n.e. of the city of Coimbatore. It takes its name from its position at the confluence of the Bhavani or Bhovani, and the Cauvery. It is worthy of notice chiefly for its temples of Vishnu and Siva. Pop. about 7,000.

BHAWLPOOR, *bhawl-pôr'*: cap. of the protected state of B. in India; on a tributary of the Ghara, which, formed by the junction of the Sutlej and the Beas, falls into the Chenab about 50 m. further down; lat. $29^{\circ} 24'$ n., and long. $71^{\circ} 47'$ e. It has a circuit of 4 m., part, however, of the enclosed space being occupied by groves of trees. B. has manufactures of scarfs and turbans, chintzes and other cottons, and the immediate neighborhood is remarkably fertile in grain, sugar, indigo, and tobacco, with an abundance of mangoes, oranges, apples, and other fruits, in perfection. Much butter is produced. For external commerce, B. is favorably placed, at the junction of three routes respectively from the e., s.e., and s., while towards the n. the Hindu merchants, who are very enterprising, have dealings with Bokhara, and even with Astrakhan, Pop. estimated, 20,000.

BHAWLPOOR, the state, lies in lat. $27^{\circ} 41'$ – $30^{\circ} 25'$ n.; and long. $69^{\circ} 30'$ – $73^{\circ} 58'$ e.; about 15,000 sq. m., with rather more than 38 inhabitants to a sq. m. The country is remarkably level: only about one-sixth is capable of cultivation. The fertile portion, skirting the Ghara and the Indus, has a purely alluvial soil; but the remainder, though presenting many traces of former cultivation and population, is now, from want of water, an irreclaimable desert either of hard dry clay, or of loose shifting sands. Besides beasts of chase, such as tigers, boars, etc., B. abounds in domestic animals, such as camels, kine, buffaloes, goats, and broad-tailed sheep. In few parts of the world are provisions finer or cheaper. Principal exports are cotton, sugar, indigo, hides, drugs, dye-stuffs, wool, ghee or butter, and provisions in general. Principal imports are the wares of Britain and India. In 1866, the state, at the request of the leading men, was taken under British management till the young nabob should be of age. The great majority of the inhabitants are Mohammedans. Pop. (1881) 573,000; (1891) 648,900.

BHEL, or BAEL: see ÆGLE.

BHOOJ, *b'hôj* or *bôj*: cap. of Cutch, in India, situated at the foot of a fortified hill of the same name, where a temple has been erected to the cobra-de-capello; lat. $23^{\circ} 15'$ n., long. $69^{\circ} 44'$ e., about 35 m. from the sea. Its mosques and pagodas, interpersed with plantations of dates, give to the town

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an imposing appearance from a distance. In 1819 it suffered severely from an earthquake. It is celebrated through India for its manufactures in gold and silver. Pop. (1891) 30,000.

BHOPAL, *bo'pawl'*: cap. of the territory of the same name, in India; lat. $23^{\circ} 14'$ n., long. $77^{\circ} 33'$ e. It is surrounded by a dilapidated stone-wall 2 m. in circuit. The fort, which is the residence of the nawab, stands on a huge rock outside the town. B. is worthy of notice mainly in connection with two immense tanks in the immediate neighborhood—one of them being 2 m. in length, and the other measuring $4\frac{1}{2}$ m. by $1\frac{1}{2}$. As each sends forth a river, they have probably been formed by the embanking and damming up of their respective streams. Pop. (1901) 77,023.

BHOPAL, the territory, is a protected state, under the immediate superintendence of the gov. gen. It is within the basins of the Ganges and Nerbudda; lat. $22^{\circ} 32'$ – $23^{\circ} 46'$ n., long. $76^{\circ} 25'$ – $78^{\circ} 50'$ e.; estimated 6,874 sq. m., with a population of 138 to the square mile. Though the vast mass of the people are Hindus, yet the government is Mohammedan, and is understood to be more popular in its character than any other in India. Pop. (1901) 963,610.

BHOTAN, or **BOOTAN**, *bó-tan*: an independent territory in the n.e. of India, on the s. slope of the Himalayas; lat. $26^{\circ} 18'$ – $28^{\circ} 2'$ n., long. $88^{\circ} 32'$ – $92^{\circ} 30'$ e.; bounded on the e. by Assam, on the s. by Bengal, and on the w. by Sikkim. In the *Statesman's Year-Book* (1903) its area is estimated at 16,800 sq. m., and its population at 200,000. With summits exceeding 22,000 ft., the whole surface may be described as mountainous, with a gradual slope from n. to s. Generally speaking, the middle ranges are most productive. While the s. presents but a scanty vegetation, and the n. rises far above the limit of perpetual snow, the central regions, at an elevation of 8,000 or 10,000 ft. above the sea, are covered with the finest forests of oak and pine. Nearly all sorts of grain—wheat, barley, rice, maize, and buckwheat—are here and there cultivated on favorable spots; but much grain is still imported from Bengal, being obtained, as well as sugar and tobacco, in return for native cloths, rock-salt, rhubarb, Tibet goods, mules, and ponies. The religion is Buddhism, the monastic endowments of its priests absorbing a large part of the national property. The government, almost purely ecclesiastical, is in the hands of an oligarchy. The Dherma Rajah, the nominal head, is treated rather as a god than as a sovereign; while the Deb Rajah, the actual head, is controlled in almost everything by a council of eight. Polyandry and polygamy equally conspire to keep down the numbers of the population.

BHOWAN, *b'ho-wân'*, or **BHOWANY**, *b'ho-wá'nē*, or **BHEWANNEE**, or **BHIWANI**, *bē-wā'n'nē*: town of British India, dist. of Hissar, Punjab, 55 m. w. of Delhi. Pop. (1881) 33,762; (1891) 35,487.

BHUJI, *b'hū'jē*, or **BIJI**, *bē'jē*: small hill-state of India, extending about 20 m. along the left bank of the Sutlej, and about 7 m. at its greatest breadth. Having been overrun by the Goorkhas, it was, on their expulsion, bestowed by the

British government on the present family. Pop. abt 12,000.

BHURTPORE, *b'hūrt-pōr*: cap. of the protected state of the same name in India; a large town, measuring about 8 m. in circuit; lat. $27^{\circ} 13' \text{ n.}$, long. $77^{\circ} 32' \text{ e.}$, 35 miles w. of Agra. It is worthy of notice chiefly on account of its two sieges by the British forces in 1805 and 1827. The strength of the place lay in a mud-wall, practically shot-proof, and a surrounding ditch, which might at any time be filled with water from a neighboring lake. Pop. (1891) 68,033.

BHURTPORE, the protected state, is in lat. $26^{\circ} 48' - 27^{\circ} 50' \text{ n.}$, long. $76^{\circ} 54' - 77^{\circ} 49' \text{ e.}$; estimated 1,974 sq. m. The country suffers from want of water, having only three perennial streams, of which two are mere rills in the dry season; yet in many parts the soil is rendered highly productive by means of irrigation. Principal crops are grain, cotton, and sugar. In the height of summer the climate has been compared to the extreme glow of an iron-foundry, the thermometer having been known to stand at 130° F. in the shade. The rajah's revenue is stated at £242,375 a year and his military force is said to amount to 5,400 men of all arms. Pop. (1881) 645,540—an average of less than 330 to a sq. mile; (1891) 640,620.

BHYSTIE, n., also **BHEESTIE**, n. *bēs'tī* [Pers. *bhystie*, sent from heaven—from *bhyst*, heaven]: in *India*, a water-carrier; a water-vendor.

BI, *bī* or *bī*, or **BIS**, *bīs* [L. twice]: a common prefix meaning *two*, *twice*, *double*, *in two*. *Note*—When compounds beginning with **Bi** are not found, mark the meaning of **BI**, and turn to the principal word.

BIA, n. *bī'ā*: a Siamese name for the small shells called *cowries* throughout the East Indies.

BIAF'RA, **BIGHT OF**: large bay of the Atlantic Ocean, on the w. coast of Africa, at the head of the Gulf of Guinea, between Cape Formosa (which divides it from the Bight of Benin) on the n. and Cape Lopez on the s. Its extreme width between these two points is nearly 600 m., its depth, to the mouth of the Old Calabar river, about 250 m. The n. shores of the Bight, comprehended under the general name or the Calabar coast, and the e. coast, s. of Cape St. John, are low and flat. Near Old Calabar the country becomes hilly, and opposite Fernando Po it rises into the lofty range of the Cameroons. The principal rivers flowing into the Bight are the Niger, or Quorra, the New and Old Calabar rivers, the Rio del Rey, the Cameroon, and the Gaboon. The creeks and estuaries of the rivers are generally lined with dense thickets of mangrove, which sometimes grow in the water, their lower branches covered with oysters. In the Bight of B. are the three islands of Fernando Po, St. Thomas, and Prince's Island. The chief European stations on the coast are Duke Town, in Old Calabar, where there is a flourishing missionary station, and Naango, or George's Town, a small commercial town on the estuary of the Gaboon.

BIALYSTOK, *be-āl-īs-tōk'*: fortified town of w. Russia, in the gov. of Grodno: on the Biala, an affluent of the

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Narew, 45 m. s.w. of Grodno; lat. $53^{\circ} 8' \text{ n.}$, long. $23^{\circ} 18' \text{ e.}$ B. is well built; lime trees border several of the streets, and give it a very pleasant aspect. It has a palace and park, now belonging to the municipality, but formerly belonging to the Counts of Braniski, and called the 'Versailles of Poland,' a commodious market, and several churches. It has manufactures of woolens, hats, leather, soap, tallow, etc. Pop. (1883) 39,926; (1888) 50,726.

BIANA, *be-ân â*: town of India, in the Rajpoot state Bhurtpore; anciently of much greater importance than now, and one of the most famous forts in India. The town contains many temples, and the whole ridge of the hill is covered with the remains of large buildings. A high pillar of stone called Bhim Lat, or the *Staff of Bhim*, is conspicuous over a wide extent of country.

BIANCAVILLA, *be-an'kâ-vil'la*: town of Sicily; in the province of, and about 14 m. n.w. of, the city of Catania. It is about 10 m. from Mount Etna, on the s.w. declivity of which mountain it is situated. It has a trade in grain, cotton, and silk. Pop. (1881) 13,031; (1893) 12,631.

BIANCHINI, *be-ân-k'î'nê*, FRANCESCO: antiquary and astronomer: 1662, Dec. 13—1729, March; b. Verona, where he received his early education in the Jesuits' College. At Padua he studied theology, mathematics, and above all, botany; and then went to Rome, where he became intimate with the most distinguished *savans* of the day, and studied jurisprudence and foreign languages. Alexander VIII. bestowed upon him a rich benefice, and Clement XI. appointed him sec. to the commission for reforming the calendar. B. was employed to draw a meridian line in the church of Santa Maria degli Angeli, in Rome, which he successfully accomplished. Besides several memoirs and dissertations on antiquarian and astronomical subjects, may be mentioned his *Istoria Universale Provata coi Monumenti e Figurata coi Simboli degli Antichi* (Rome, 1694), and his fine edition of the work of Anastasius, *De Vitis Romanorum Pontificum*, completed by his nephew Giuseppe B. (4 vols., Rome, 1718-34). A monument was erected to his memory in the cathedral of Verona.

BIANGULAR, a *bî-âng-gû'lér* [L. *bis*, *an'gûlus*, a corner]: having two angles or corners.

BIARD, *be-âr'*, AUGUSTE FRANÇOIS: 1798, Oct. 8—1882, June; b. Lyon, France: painter, known in almost every department of his art, but distinguished chiefly for his animated and often comical representations of ordinary life and manners (*peinture de genre*). His countrymen have styled him the Paul de Kock of painting. He was intended for the priesthood, but about 1813 entered the School of Art of his native city. He travelled in early life in Malta, Cyprus, Syria, and Egypt, where he made sketches and stored his memory with images which he used in after-years. In 1839 he visited Greenland and Spitzbergen, and of this journey one of the fruits was his famous *Combat with Polar Bears*. In 1858-9 he visited Brazil, and in 1865 travelled round the world. The first picture which gave

him distinction was his *Babes in the Wood* (1828); and one of his best is the *Beggar's Family* (1836). His picture, *The Wandering Comedians*, is in the Luxembourg. Many continental galleries possess examples of B.'s pictures. He died in Paris.

BIARRITZ, *be-ar-ritz'*: maritime village of France, dept. of the Basses-Pyrénées; about 5 m. s.w. of Bayonne. It was the summer residence of Napoleon III. During the season B. is often visited by 6,000 guests. There are numerous hotels, a great bathing establishment, casino, a number of scattered villas, etc. Pop. (1891) 8,444.

BIAS, n. *bī'ās* [F. *biais*, a slope—from mid. L. *bif'acem*, a two-faced thing, one who squints or looks sidelong: It. *sbiescio*, slant, on one side]: a slanting or bending from the straight line; a disposition or leaning of the mind—and also that which causes it; inclination; prepossession: V. to incline to; to prejudice in favor of. BRASSING, imp. BIASED, pp. *bī'ast*, inclined in favor of. BIAS, ad. in *OE.*, obliquely; wrongly; crosswise: ADJ. in *OE.*, sloping; out of form.—SYN. of 'bias, n.': bent; inclination; turn; propensity; tendency; proneness.

BIAS, *bī'as*: lived abt. B.C. 570: one of the seven sages of anc. Greece, in the time of the Lydian king, Alyattes, and his son, Cræsus. He was generally employed as a political and legal adviser in difficult questions. At the overthrow of Cræsus, when the Ionians dreaded an invasion by Cyrus, they were advised by B. to take their personal property and colonize Sardinia; but this advice was rejected, and the Ionians, after a vain defense, were subjugated by the generals of Cyrus. When the people of Priene—the birthplace of B.—were making preparations to escape from their besieged city, B. in reply to one who asked why he was not occupied like other citizens, employed the words which have become a Latin proverb, *Omnia mea mecum porto*, 'I carry all my goods with me.'—Orelli, *Opuscula Græcorum Veterum*, etc., 1819.

BIB, v. *bīb* [L. *bibo*, I drink: Dut. *biberen*, to drink to excess: F. *biberon*, a tippler]: to sip; to tipple. BIBBING, imp. BIBBED, pp. *bībd*. BIBBER, n. *bīb'ber*, one who sips or tipples.

BIB, n. *bīb* [F. *bavon*, a bib; *baver*, to slaver—from *bave*, spittle: Fris. *babbe*, the mouth]: a piece of cloth put on the breasts of children for cleanliness when feeding them.

BIB, *bīb*, or POUT, *powt*, or WHITING POUT, *whīt'ing* (*Gadus luscus* or *Morrhua lusca*): a fish of the same genus with the Cod (q.v.) and Haddock (q.v.), common on many parts of the British coasts, found also on those of Norway, Sweden, Greenland, etc. It is of pale olive color, sides tinged with gold, belly white; and is seldom more than a foot long, but remarkably differs from all other British fishes of the same family (*Gadidae*, q.v.) in the great depth of its body, which equals at least one-fourth of the entire length. The back is arched, and the nape exhibits a rather sharp ridge. The eyes and other parts

BIBACIOUS—BIBIRI.

of the head are invested with a singular loose membrane, which the fish can inflate at pleasure. There is a dark spot at the origin of each of the pectoral fins, as in the Whiting (q.v.). The names Bib and Pout, both originally local English names, were at one time supposed to belong to distinct species (called *G. lusca* and *G. barbata*), but these appear really one. In Scotland, this fish is generally called *Brassy*. It is well known in the London market, is in best condition in Nov. and Dec., and is much esteemed for the table.

BIBACIOUS, a. *bī-bā'shūs* [L. *bibo*, I drink (see **BIB** 1)]: given to drinking. **BIBACITY**, n. *bī-bās'ī-tī*, love for drinking. **BIBULOUS**, a. *bīb-ū-lūs*, drinking in; spongy. **BIBIO**, n. *bīb'ī-ō*, the wine-fly.

BIBASIC, a. *bī bā'sīk* [L. *bis*, two; *basis*, a base]: having two bases—applied to acids which combine with two equivalents of a base; *dibasic* is more correct.

BIBBER: see under **BIB** 1.

BIBBS, n. plu. *bībz*: in *shipbuilding*. pieces of timber bolted to certain parts of a mast to support the trestle-trees.

BIBERACH, *be'ber-āk*: town of Würtemberg, in the circle of the Danube; on the Reiss, in the charming valley of the same name, about 23 m. s.s.w. of Ulm: surrounded by portions of the old ramparts flanked with towers. It has manufactures of machinery, artificial flowers, leather, children's toys, etc. In 1796, Oct., Moreau won a great victory over the Austrian general Latour at B., the latter losing 4,000 prisoners and 18 pieces of cannon. Here also, 1800, Saint Cyr defeated the Austrian general Kray. B. fell into the possession of Baden, 1802, but four years afterwards was ceded to Würtemberg. Wieland the poet was born in the immediate vicinity. Pop. (1885) 7,938

BIBERICH, *be'ber-īk*: village in the province of Hesse-Nassau, on the right bank of the Rhine, about four m. from Wiesbaden; noted for its splendid palace. The views of the river-scenery from B. are unrivalled. Pop., including Mosbach (1880), 8,499, (1891) 11,052.

BIBIO, n. *bīb'ī-ō* [L. *bibio*, a small insect generated in wine]: a genus of dipterous insects belonging to the family *Tipulidæ*.

BI'BIRI—BI'BIRI BARK—BI'BIRINE: see **GREEN HEART**.

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BIBLE, n. *bībl* [F. *Bible*—from L. *et* Gr. *biblia*, a collection of writings—from Gr. *biblion*, a book; see **BOOK**]. The Book; the Holy Scriptures. **BIBLI** *al*, a. *bīb'li-kāl*, relating to the Bible. **BIB'LICALLY**, ad. *ī*. **BIBLICIST**, n. *bīb'li-sist*, or **BIB'LIST**, n. one skilled in the knowledge of the Scriptures. See **BIBLE**, **THE**.

BIBLE, CANTERBURY REVISION OF THE; OR REVISED ENGLISH VERSION OF THE: a revision of the version of 1611 (or King James' Version), which originated in the Convocation of Canterbury, Eng., 1840, May 6, through the appointment of a company of eminent biblical scholars and clergymen of the Church of England, to revise for public use the English version of the Scriptures of 1611, with power to associate with themselves in this work representative biblical scholars or other Christian denominations using that version. The English company accordingly invited the appointment of a similar American committee, to be associated with them, forming one organization, with the same principles and objects, and to be in constant correspondence with them, with the view that both together should issue one and the same revision for all English-speaking people. The two committees appointed, being both for the Old and New Testament, comprised the following:

ENGLISH REVISION COMMITTEE.—Old Testament.—The Rt. Rev. Edward Harold, Lord Bishop of Winchester, Farnham Castle, Surrey; the Venerable the Archdeacon of Maidstone, Canterbury; R. L. Beasley, Esq., Gonville and Caius Coll., Cambridge; Frank Chance, Esq., M.D., Burtleigh House, Sydenham Hill, S. E.; the Rev. T. R. Cheyne, Tendering Rectory, Colchester; the Very Rev. Principal Douglas, 18, Royal Crescent, Glasgow; the Rev. Dr. D. R. Ginsburg, Holmlea, Virginia Water Station, Chertsey; the Rev. Dr. Kay, Gt. Leghs Rectory, Chelmsford; the Rev. Prof. Lumby, St. Catherine's Coll., Cambridge; the Rev. A. H. Sayce, Queen's Coll., Oxford; Prof. Wright, St. Andrew's Station Road, Cambridge; the Rt. Rev. the Lord Bishop of Bath and Wells, Palace, Wells, Somerset; the Very Rev. the Dean of Canterbury, Deanery, Canterbury; the Rev. Prof. Birrell, St. Mary's Coll., St. Andrews, N. B.; the Rev. Prof. Davidson, New Coll., Edinburgh; S. R. Driver, Esq., New Coll., Oxford; the Rev. J. D. Geden, Wesleyan Coll., Didsbury, Manchester; the Rev. Dr. Gotch, Baptist Coll., Bristol; the Rev. Prof. Leathes, Cliffe Rectory, Rochester; the Very Rev. the Dean of Peterborough, Deanery, Peterborough; the Rev. W. Robertson-Smith, Christ's Coll., Cambridge; W. Aldis Wright, Esq., Trinity Coll., Cambridge. **New Testament.**—The Rt. Rev. Charles Wordsworth, Bishop of St. Andrews, Bishop's-hall, St. Andrews, N. B.; the Very Rev. Principal Brown, Free Church Coll., Aberdeen; the Rev. Dr. Moulton, The Leys, Cambridge; the Venerable the Archdeacon of Oxford; the Rev. Prebendary Scrivener, Hendon Vicarage, N. W.; the Very Rev. Charles John Vaughan, D.D., Dean of Llandaff, The Temple, E. C.; the Rev. Canon Troutbeck, 4 Dean's Yard, Westminster; the Rev. Dr. G.

Vance Smith, 5, Parade, Carmarthen; the Right Rev. the Lord Bishop of Gloucester and Bristol, Palace, Gloucester; the Very Rev. the Dean of Rochester, Deanery, Rochester; the Very Rev. the Dean of Litchfield, Deanery, Litchfield; the Right Rev. the Lord Bishop of Durham, Auckland Castle, Bishop-Auckland; the Rev. Dr. Angus, Baptist Coll., Regent's Park, London; the Rev. Prof. Hort, 6, St. Peter's Terrace, Cambridge; the Rev. Canon Kennedy The Elms, Cambridge; the Rev. Prof. Willigan, University, Aberdeen; the Rev. Principal Newth, New Coll Hampstead, N. W.; the Rev. Prof. Roberts, St. Andrews N. B.; the Rev. Canon Westcott, Trinity Coll., Cambridge

AMERICAN REVISION COMMITTEE.—*Old Testament*.—William Henry Green, DD., LL.D. (chairman), Prof. Theological Seminary, Princeton, N. J.; George E. Day, D.D. (secretary), Prof. Divinity School of Yale Coll., New Haven Conn.; Charles A. Aiken, D.D., Prof. Theological Seminary, Princeton, N. J.; Talbot W. Chambers, D.D., Collegiate Reformed Dutch Church, New York; Thomas J. Conant, D.D., Brooklyn, N. Y.; John DeWitt, D.D., Theological Seminary, New Brunswick, N. J.; George Emlen Hare, D.D., Divinity School, Philadelphia, Penn.; Charles P. Krauth, D.D., LL.D., Vice-Provost University of Pennsylvania, Philadelphia; Charles M. Mead, D.D., Theological Seminary, Andover, Mass.; Howard Osgood, D.D., Professor Theological Seminary, Rochester, N. Y.; Joseph Packard, D.D., Theological Seminary, Alexandria, Va; Calvin E. Stowe, D.D., Hartford, Conn.; James Strong, S.T.D., Theological Seminary, Madison, N. J.; C. V. A. Van Dyck, D.D., M.D., Beirut, Syria (advisory member on questions of Arabic). *New Testament*.—Theodore D Woolsey, D.D., LL.D., (chairman), New Haven, Conn.; J. Henry Thayer, D.D. (secretary), Prof. Theological Seminary, Andover, Mass.; Ezra Abbott, D.D., LL.D., Divinity School, Harvard University, Cambridge, Mass.; J. K. Burr, D.D., Trenton, N. J.; Thomas Chase, LL.D., President Haverford Coll., Penn.; Howard Crosby, D.D., LL.D., Chancellor University of the City of New York N. Y.; Timothy Dwight, D.D., Divinity School of Yale Coll., New Haven, Conn.; A. C. Kendrick, D.D., LL.D. University of Rochester, Rochester, N. Y.; Alfred Lee, D.D., Bishop of the diocese of Delaware; Matthew B. Riddle, D.D., Prof. Theological Seminary, Hartford, Conn.; Philip Schaff, D.D., LL.D., Union Theological Seminary, New York; Charles Short, LL.D. (secretary), New York; E. A. Washburn, D.D., Calvary Church, New York.

These committees commenced operations 1870, June 30, and held their final sitting 1884, June 20, the revision thus occupying 14 years. There were 85 sessions, comprising 792 days of six hours each. The greater part of the sessions were for 10 days each, generally opening on Tuesday in each alternate month and continuing until Friday of the week following. It may be observed that the version of 1611 was carried through in three years (1607–1610).

The committees laid down rules for their guidance, including the following general principles:

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1. To introduce as few alterations as possible into the text of the Authorized Version, consistently with faithfulness.
2. To limit, as far as possible, the expression of such alterations to the language of the authorized or earlier versions.
3. That the text to be adopted be that for which the evidence is decidedly preponderating
4. That when the text so adopted differs from that from which the Authorized Version was made, the alteration is to be indicated in the margin.
5. To revise the headings of chapters, pages, paragraphs, italics, and punctuations.

The labor of this undertaking may be judged from the fact that every sentence had to pass three readings. On the first reading alterations required a bare majority. Special statements of these alterations were then printed and circulated among the members and also submitted to the American revision committee, which had been appointed on the invitation of Convocation, as already stated. Before the organization of the American committee, however, the English revisers had completed the second revision of the Pentateuch, but the American criticisms were before them on proceeding to the final revision, and for the rest of the work before proceeding to the second. On the second revision the invariable rule was applied that no change should be finally made in a text of the authorized version except by two-thirds of the company present and voting, and on the third revision, which was devoted to observations on points in reserve, the same rule was of course rigidly observed. In many cases where the majority, though falling short of two-thirds, was yet impressive, the rendering so preferred was placed in the margin. Besides the marginal readings, all questions of punctuation and divisions into paragraphs, except where these affected the sense, were decided by a similar majority. It is believed that the two-thirds rule tended to a conservative result. The Bishop of Durham, writing about the time when the revisers commenced their labors, said: 'If there be any reasonable grounds for apprehension, the danger is that the changes introduced will be too slight to satisfy the legitimate demands of theology and scholarship.'

The revisers had no alternative but to adhere to the Received or, as it is commonly called, the Masoretic text. This has come down to us in manuscripts of no very great antiquity, and all belonging to the same family or recension; the earliest of which the age is certainly known bears date A.D. 916, and others range from the 12th to the 15th c. That other recensions were at one time in existence is a very probable inference from the variations in the ancient versions, which were made, speaking roughly, from B.C. 3d c., to A.D. 4th c., the oldest being the Greek or Septuagint. These versions accordingly refer to manuscripts much older than any now known, and though of unequal value they occasionally show superior readings. The state of present knowledge, however, would not justify any attempt at an entire reconstruction of the text on the authority of the versions, and the revisers, making a virtue of a practical

necessity, prudently contented themselves with the Masoretic text as a basis, departing from it, as the former authorized translators had done, only in exceptional cases. Where these cases presented variations, the revisers selected one reading as the best for translation, placing alternate readings of sufficient probability or importance in the margin. In some few cases of extraordinary difficulty, where they were driven to adopt a reading on the authority of the ancient versions, they notified on the margin the departure from the Received text. Even this slight recognition of the versions of the ancient text is regarded by many scholars as one of the most important features of the Revised version.

The historical books naturally presented the least difficulty, while the poetical and prophetic books, with their poetical style, were extremely difficult to deal with, the translation always tending to assume the form of a commentary. A powerful advantage was derived from the immense advance that has been made in the researches in Hebrew itself and cognate languages, the authorized translators having been greatly aided by the translation of the Hebrew from the Jewish grammarians and lexicographers. This important linguistic study was perhaps of most benefit in the book of Job. The characteristic parallelism of Hebrew poetry was carefully exhibited by an arrangement as in poetic lines. The book of Job was treated as one long poem, the opening and the close standing in prose form. The Psalms, the Proverbs, the Song of Solomon, and the Lamentations of Jeremiah also were set forth in poetic lines, as well as the Song of Miriam, Balaam's blessing of the Israelites, Joshua's adjuration of the sun and moon to stand still, and similar poetic or psalm-like passages wherever occurring. The prophetic books, though containing frequent parallelisms, were, excepting purely lyrical passages, treated as prose. The venerable structure of the authorized version was retouched with reverent self-restraint. The revisers stated that they 'have borne in mind that it was their duty not to make a new translation, but to revise one already existing, which for more than two centuries and a half had held the position of an English classic. They have therefore departed from it only in cases where they have disagreed with the translation of 1611 in the construction of a word or sentence, or where it was necessary, for the sake of uniformity, to render such parallel passages as were identical in part, by the same English words, so that an English reader may know at once by comparison that a difference in the translation corresponds to differences in the original, and where the language of the authorized version was liable to be misunderstood by reason of its being archaic or obscure; or finally, where the reading of the English version is made preferable, or where, by an apparent change, it was possible to bring out more fully the meaning of the passage of which the translation was already substantially correct.'

The old division into verses was abolished by the revisers, paragraphs being substituted, but the numbering of the chapters and verses was retained. One consequence of the

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arrangement into paragraphs was the omission of the headings of the chapters, 'which for other and more important reasons it was thought advisable to abandon, as involving questions that belong rather to the province of the commentator than to that of the translator.' For the same reasons the head-lines of pages also were swept away.

In regard to the co-operation of the American revisers, their views were accepted or refused on their merits precisely in the same way as the views of the English revisers. All points of ultimate difference between the English and the American companies, however, were placed on record; and in reference to this the English revisers say: 'Many of them will be found to be changes of the English which are involved in the essentially different circumstances of American and English readers; others express a preference for the marginal reading over that given in the text; others again involve a real difference of opinion, but all show that they have been actuated by the same thought and principle—the sincere desire to give to modern readers a faithful representation of the meaning of the original documents.' The acceptance of the new version by the public has been with mingled favor and criticism, as was the case with the King James' Version, which did not gain universal acceptance for nearly half a century after its completion. It is almost universally conceded that in the Old Testament the new version is a distinct and very profitable advance on the old version in nearly all important practical points. In regard to the New Testament there is more reserve in the public judgment, and strong criticism of the English style of the revised version of the New Testament is not lacking. Still the general voice of scholarship declares the New Testament in the revised version to be at least an indispensable commentary on the former version—not always fully acceptable for public use, but of very great value in removing obscurities in the sense, and casting light on points doubtfully or infelicitously expressed in the old version. A demand is rising for a further and more thorough dealing with the work of translation, which shall avail itself, as even the revised version was not authorized to do, of all materials accessible, and of all advances of scholarship. No public or official steps in this direction have yet been taken; nor are such steps known to be in contemplation.

BIBLE, PROHIBITION OF THE: one of the main points of opposition between the Rom. Cath. and the Prot. Churches. There is no evidence of any prohibition of Bible-reading by the laity in the earliest times. On the contrary, as the divinely given record of the facts on which the church was built, and as the historical standard of religious knowledge, the reading of the Bible was an essential part of the instruction communicated by pastors to their congregations; and the greatest orators of the Church—especially Chrysostom and Augustine—continually reminded their hearers that private reading and study of the Scriptures should follow attendance on public services. This great fact is by no means contradicted by the warnings found, here and there, in the Fathers against abuse or mistake of the meaning of Scripture; instead, these

warnings imply that Scripture-reading was common among the laity. The gradual widening of the distinction, or rather the separation, between the clergy and the laity was the work of the middle ages; and, among other means of preserving traditions inviolate and maintaining the exclusive character and sacred authority of the hierarchy, the B. was held in the background, even while there was no direct prohibition of its common use. In 1080, Gregory VII. ordained that Latin should be the universal language of Rom. Cath. worship, and consequently excluded all vernacular readings of Scripture in public assemblies. Again, with regard to the Waldenses, Innocent III., 1199, prohibited the private possession and reading of Scripture (excepting the portions contained in the Breviary and the Psalter) without priestly permission and supervision. Similar prohibitions were repeated at Toulouse (1229), at Béziers (1233), and with regard to Wickliffe, at the synod of Oxford (1383). Ultimately, the recognized Latin version, or Vulgate, was more and more decidedly made the sole authorized Church version. Indeed, as early as 1234, the synod of Tarragona denounced as a heretic any one who, having a translation of the B., refused to surrender it to be burned within the space of eight days. As, however, it soon appeared plain that little could be effected by such prohibitions, milder measures were employed. The Tridentine Council, being required to pronounce on the question of B. translations, purposely employed a word of ambiguous meaning in styling the Vulgate simply 'authentic;' but nothing was determined on Bible-reading among the laity. This was done first in the publication of the first *Index Librorum Prohibitorum* soon after the Tridentine Council. Afterwards, the rules of the church, placing the use of the Scriptures under the supervision of the bishops, were more and more strictly defined. The publication of the New Testament with practical annotations by Paschasius Quesnel (1687), gave occasion to the Rom. Cath. Church to speak more definitely on the reading of the B. by the laity in the bull *Unigenitus Dei Filius*, 1713. New ordinances were issued by Pope Pius VII. in his brief to the Abp. of Gnesen and Mohilew (1816) against translations formerly authorized; again by Leo XII., in his condemnation of B. societies (1824), and by Pius VIII. All these ordinances of the Rom. Cath. church imply that it is dangerous to give the B. freely to the laity, and that, therefore, no vernacular versions ought to be used without interpretations taken from the Fathers, and an especial papal sanction.

BIBLE, THE: name given by Chrysostom, 4th c., to the collection of sacred writings recognized by Christians as the documents of their divinely revealed religion. Both as regards language and contents, they are divided into two parts—the Old and New Testament, or rather the Old and New Covenant; for the word *testamentum* is a translation into the later Latinity of the 2d c. of the Greek *diatheke*, ‘covenant.’ The history of the Old Testament is connected with that of the New by a series of writings not received by Protestants as canonical, and collectively styled the *Apocrypha* (q. v.).

The **OLD TESTAMENT** is a collection of 39 books, written mostly in the Hebrew, and partly in the Chaldaic language, and containing all the remains of Hebrew-Chaldaic literature down to the middle of B.C. 2d c. By an artificial arrangement under the letters of the Hebrew alphabet, the number of books has been limited among the Jews to 22. These writings were spoken of in the time of Christ, and for some indefinite period before his time, as *graphé*, Scripture, or Holy Scripture, or, as ‘the Law and the Prophets.’ Sometimes the Psalms and the remaining holy writings (*hagio grapha*) are distinctively noticed. The *usus loquendi* of the New Testament (Matt. xi. 13; xxii. 40; Acts xiii. 15; Luke xxiv. 44; etc.) is evidence of this. The Law comprised the Pentateuch, or the first five books. The Prophets were subdivided into earlier and later: the former including the books of Joshua, Judges, Samuel, and Kings; and the latter containing the three great prophets, Isaiah, Jeremiah, and Ezekiel—as well as the twelve minor prophets. The third division of the Old Testament embraced the *hagiographa*, consisting of the books of Job, Proverbs, Psalms, the Song of Solomon, Ecclesiastes, Ruth, Lamentations, and Esther, together with the books of Daniel, Ezra, Nehemiah, and 1 and 2 Chronicles. With regard to the order of these several books, the Alexandrine translation, the Fathers of the Church, and Luther, on one side, differ from the Jews; again, among the Jews, the Talmudists differ from the Masoretes, while a difference is also found between Spanish and German MSS. Hence have sprung the different arrangements of the books of the Old Testament.

The Septuagint is generally adduced in proof of the existence of these books in a collected form as early as B.C. 285, but an examination of the Aristean fiction (see **ARISTEAS** and **SEPTUAGINT**) is sufficient to show that at that period no more than the Pentateuch was translated into Hellenistic Greek. The earliest indubitable notice is found in the prologue to the Alexandrine translation of the book of Jesus, son of Sirach, written by his grandson probably about B.C. 130, which demonstrates that the Law and the Prophets then existed in a collective form; but this language does not prove that the third division was then concluded, though neither does it disprove it. This conclusion is first definitely ascertained from the catalogue given by Josephus, who lived after the middle of the 1st c. of the Christian era,

while Philo, who lived A.D. 41, quotes casually from nearly the whole of them.

As regards the genuineness and authenticity of the Old Testament, there has been much discussion in modern times. The generally received opinion is, that the various books were *originally* written wholly or chiefly by the persons whose names are affixed to them, except Judges (Samuel), Ruth (Samuel), Esther (Mordecai), Kings and Chronicles (Ezra and Jeremiah), and perhaps Job (Moses?); but that these MSS. having perished in the destruction of the first temple, when Nebuchadnezzar took Jerusalem, the members of the Great Synagogue (q.v.)—which included Ezra, Nehemiah, Haggai, Zechariah, Malachi, and afterwards Simon the Just—50 years after the building of the second temple, acting in accordance with a divine commission, rewrote the Old Testament; or rather made a recension of other existing copies, to which were subsequently added the books of Ezra and Nehemiah. Thus the canon was concluded. This was the belief of the Jews themselves at a later period; the *Pirke Aboth* (Sayings of the Fathers), one of the oldest books of the Talmud, as well as other Jewish records, distinctly assert it. It is, however, simply a tradition, and, though possibly true, is necessarily incapable of either demonstration or refutation. In the absence of any direct and conclusive evidence on this point, the contents of the Old Testament have been minutely analyzed by modern German critics, who have attempted to show that they bear internal evidence of having been composed generally at a later period than is ordinarily believed. Their work, since taken up by English, Dutch, and French scholars, of whom perhaps the most notable are Colenso (see NATAL) and Kuenen, has been prosecuted with keenness and vigor. See HIGHER CRITICISM, THE.

The Samaritans, who were at enmity with the Jews, recognized only the five books of Moses, and a corrupt version of the book of Joshua, as canonical. On the other side, the Egyptian Jews, for whom the Alexandrine version of the Old Testament was made, received as canonical several writings which were rejected, or subordinated as apocryphal (see APOCRYPHA), by the Jews of Palestine. The primitive church, in the period which elapsed before the canon of the New Testament was completed, referred to the Old Testament for proof of doctrines; but on account of the prevalent ignorance of the Hebrew and Chaldee languages among the early Christians, the Alexandrine Greek version was the authority employed. As this included the apocryphal books rejected by the Jews of Palestine, the earliest Christian Fathers made the same use of these writings as of the others; but the growth of criticism during the next two centuries was fatal to their reputation, or at least to their authority. We do not find, however, that they were formally designated 'apocryphal' until the time of Jerome (5th c.), though the Greek Church, in the previous century, had approximated to this mode of viewing them, by affirming them to be *not* canonical, but only edifying, and also by issuing lists or catalogues of those books which were

recognized as canonical. In the Latin Church, on the other hand, these writings were received as canonical after the 4th c., though Jerome, Hilarius, Rufinus, and Junilius wished to distinguish them from the canonical books by the name of *libri ecclesiastici*. The Protestants, at the Reformation, returned to the distinction originally made by the Palestinian Jews between the Hebrew Scriptures of the Old Testament and the Apocryphal works included in the Alexandrine version and the Latin Vulgate. Luther, in his translation of the B., included the Apocrypha as 'books not to be placed on a level with the canonical Scriptures; but profitable for reading.' The Council of Trent, which seemed to think that the only safe path for Roman Catholicism to pursue was the exact opposite of that on which Protestantism moved, declared that whoever denied the canonical character of the Apocrypha should be *anathema*.

The NEW TESTAMENT, or the collection of canonical scriptures containing the history and doctrines of Christianity, may be divided into three chief sections: 1. The historical books, or the four gospels, and the Acts of the Apostles. 2. The didactic and pastoral writings, which include the Epistles of Paul to the Romans, Corinthians, Galatians, Ephesians, Philippians, Colossians, Thessalonians, Timothy, Titus, and Philemon, the Epistle to the Hebrews (which does not state the writer's name), the two Epistles of Peter, the three epistles of John, the Epistles of James and Jude. 3. The prophetic section, consisting only of one book, the Apocalypse, or Revelation of St. John the Divine. The primitive Christians referred for proof of doctrine, etc., only, so far as we are aware, to the Old Testament, and quotations from it by the apostolic Fathers are numerous enough; but we find few clear and certain references to the didactic portions of the New Testament. The reason of this appears to be, that the lapse of time had hallowed the Old Testament, and given to it that superior authority which springs from venerable age. The generation which immediately succeeded that of the apostles—and indeed, so far as we can see, the same may be said of the apostles themselves—did not consider the apostolic writing of equal importance *as writings* with the sacred books of the Old Testament. Besides, most of the epistles were of little use in controversy, for the earliest heretics denied the apostleship of St. Paul; while both parties admitted the authority of the Septuagint, and found in it their common weapons of argument. Nevertheless there are occasional references to the didactic portions of the New Testament, such as those to Romans, 1 Corinthians, Ephesians, Hebrews, and James, in Clemens Romanus; to 1 Corinthians, and Ephesians, in Ignatius; to Romans, 1 Corinthians, 2 Corinthians, Galatians, Philippians, 1 Timothy, 2 Timothy, 1 Peter, and 1 John, in Polycarp. Still more uncertain are the references of the apostolical Fathers to the gospels. The notices found in Barnabas. Clemens Romanus, Ignatius, and Polycarp are only sufficient to indicate that all the great facts of Christ's life were known to the churches, and that the doctrinal significance

of these had begun to be realized. Not demonstrating the existence of written gospels, they yet prove that Christianity rests on a historic basis. Their silence in relation to the written gospels now constituting a portion of the canon of the New Testament, is at first sight, surprising; but when it is considered that the facts of the Saviour's life and teaching were apparently quite familiar to the churches—so familiar, indeed; that no explanation was needed in alluding to them—the necessity of the apostolic fathers quoting from the Evangelists disappears. It is contended, that any specific quotations would have been a work of supererogation; whereas, in the case of the didactic epistles, written originally for the benefit of particular churches, and conditioned by their special circumstances, the contents of which, therefore, could not be so well or widely known, quotations or allusions might more naturally be looked for. But evidence of this *negative* character for the existence of the evangelical records, however probable, is very uncertain, and its uncertainty is increased by the use made of writings which, at a later period, were rejected as apocryphal. First, in the second half of the 2d c., more distinct references to the gospels are found in Papias (d. 163), in Justin Martyr (d. 166), in his pupil Tatian (d. 176), in Athenagoras (d. 180), and in Theophilus, who wrote about 180. None of these writers, however, name the authors from whom they quote, though Papias—the earliest, but not the most trustworthy of them—bears direct and minute testimony to the existence of gospels by Matthew, Mark, John, to the catholic epistles, and to the Apocalypse, whence it has been concluded that the authenticity of the apostolic memoirs was not then settled, and perhaps not even investigated; but anonymous quotation seems to have been a characteristic carelessness of the time, for of this kind are 117 of Justin Martyr's references to the Old Testament. The great fact on which constructive Christian criticism leans in regard to the evidence of these writers is, that they do not speak of the gospels or apostolic memoirs as things which had only recently made their appearance, but as well known and long established. Justin even states that the 'apostolic memoirs' were regularly read in the churches for the edification of believers—a fact which clearly indicates their superior sanctity and general reception. The Tübingen school contend that these apostolic memoirs could not have been the canonical gospels, but must rather have been the primitive evangelical records out of which the canonical gospels were formed; but even the profound and searching criticism of Baur and his followers has not seriously imperilled the claim to apostolic antiquity put forth on behalf of the New Testament Scriptures. See GOSPELS.

Nevertheless, the idea of a strict and pure New Testament canon (see CANON) is not discernible in the church in Justin Martyr's time. There is no positive evidence in favor of its existence; but this is not to be wondered at, for the consciousness of freedom in the Holy Spirit, which penetrated the Christians of the 1st c.; the opposition of what in continental theology are termed the Petrine and

Pauline (q.v.), i.e., the Judaizing and anti-Judaizing parties, which does unquestionably appear to have existed; the still living tradition of the apostles; the difficulty of diffusing apostolic writings sent only to particular churches; the absence of criticism; the vacillation in determining the point where the apostolic men ceased; the use, in the worship of God, of the Old Testament, and, in particular churches, of casual Christian writings not now looked upon as canonical: all these causes together operated in hindering, till the middle of the 2d c., a formal collection of New Testament writings of any compass or critical value, though it seems quite clear that they existed separately, and were regarded as the most authoritative records of the new dispensation. The earliest trace of such a collection (the ten Pauline epistles without the pastoral epistles) appears after the middle of the 2d c., in opposition to that gnostic perversion of Primitive Christianity which had been introduced by Marcion of Pontus. The *Muratorian Canon* in the West, and the *Peshito* (q.v.) in the East, both belonging to this period, which has been called the 'Age of the Apologists,' furnish important evidence in regard to the New Testament canon, for both refer to nearly every book now received as authoritative, the exceptions being, in the former, the Epistle of James, the Epistle to the Hebrews, and 2 Peter; in the latter, Jude, 2 Peter, 2 and 3 John, and the Apocalypse. In the close of the 2d, and in the beginning of the 3d c., Irenæus, Clemens Alexandrinus, and Tertullian bear testimony to the recognition of the four gospels, the Acts of the Apostles, the thirteen Pauline epistles, 1 Peter, 1 John, and the Apocalypse, as canonical writings. But they do even more than bear testimony to their recognition—they appeal to antiquity for proof of the authenticity of the books which they used as Christian Scriptures. On this point Tertullian is especially precise, and his most convincing argument on behalf of the 'surety of the gospels' is, that 'the very heretics bear witness to them.' They did not, it is admitted, acknowledge the whole of the New Testament canon, but this is explicable on the hypothesis, which is justified by investigation, that the portions rejected were those that seemed alien to their own opinions. Two distinct collections of writings are now noticed—the *Instrumentum Evangelicum*, containing the four gospels; and the *Instrumentum Apostolicum*, containing the Acts of the Apostles, with the Pauline and other epistles. Respecting several parts of the New Testament canon, differences of opinion prevailed in early times, nor was the war of criticism closed until the 6th c., for considerable difference of opinion existed in regard to the value of the testimony of the early apologetic authors. Origen doubted the authority of the Epistle to the Hebrews, of the Epistle of James, of Jude, of 2 Peter, and 2 and 3 John; while he was disposed to recognize as canonical certain apocryphal scriptures, such as those of Hermas and Barnabas, which were decidedly rejected by the church. The Apocalypse was treated as a dubious part of the canon

down to the 7th c. The learned and circumspect Father, Eusebius, 4th c., in a passage of his *Church History*, distinguishes three classes of New Testament Scriptures: 1. Universally received Scriptures (*homologoumena*), the four gospels, the Acts of the Apostles, the fourteen Pauline epistles, 1 John, 1 Peter, and, with a certain reservation, the Apocalypse of John. 2. Scriptures not universally received, or not received at all. These he calls 'disputed' (*antilegomena*), and subdivides them into such as were generally known and approved by most—viz., the epistles of James, Jude, 2 Peter, 2 and 3 John; and such as were 'spurious' (*notha*)—viz., the Acts of Paul, the Shepherd, the Apocalypse of Peter, the Epistle of Barnabas, the Institutes of the Apostles, and the Gospel of the Hebrews. 3. Heretical forgeries, such as the gospels of Peter, Thomas, Matthias, which Eusebius pronounces to be 'altogether absurd and impious.'

The Western Church, more conservative and less critical than the Eastern Church, completed the canon with greater rapidity. Although the eastern Council of Laodicea (360–364), in determining the canon of the New Testament, excluded the Apocalypse, the western synods of Hippo-Regius (393), Carthage (397), the Roman bishop, Innocent I. (beginning of the 5th c.), and the *Concilium Romanum* under Gelasius I. (494), recognized the entire canon of the New Testament as we find it in the present day. The doubts entertained by individuals respecting some parts of the canon had become exceptional and unimportant at the close of the 7th c. Owing to the want of Greek scholarship, as also, perhaps, to the growing idea of an infallible church papacy, there was no criticism worthy of the name during the middle ages. Doubts, therefore, respecting the Epistle to the Hebrews and the Epistles of James and Jude were first revived, after a long quietude, at the time of the Reformation. Erasmus denied the apostolic origin of the Epistle to the Hebrews, 2 Peter, and the Apocalypse. Luther ventured to declare the Epistle to the Hebrews and the Apocalypse 'apocryphal.' Melancthon, Gerhard, and Chemnitz went in the same direction, and Calvin denied the Pauline authorship of the Epistle to the Hebrews. But biblical criticism, for reasons both political and ecclesiastical, soon became dormant, and so remained for nearly two centuries, when it was revived by a liberal Rom. Cath. writer, Richard Simon (d. 1712), who first conceived the plan of 'an historico-critical introduction' to the B.; afterward, the labors of Lowth, Semler, Herder, Griesbach, Michaelis, Eichhorn, and others, gave a new impulse to scriptural exegesis. In Germany we may name among writers on the conservative and orthodox side, the Rom. Catholic divines Jahn and Hug, with the Protestant writers Hengstenberg, Hävernick, Guericke, Delitzsch, and Caspari: on the other side, Berthold, De Wette, Credner, Reuss; and since the publication of the *Life of Jesus* by Strauss, the 'New Tübingen school,' with F. Baur (q.v.) at its head, has questioned the authenticity and apostolical antiquity of all the New Testa-

ment scriptures, except the four larger Epistles of Paul—to the Romans, the Corinthians (1 and 2), and the Galatians. The critical labors of Ewald (especially on the Old Testament), of Hilgenfeld, and of Keim have exerted important influence.

But, as might have been expected, the effects of the strife could not always remain confined to Germany. They have been felt more or less over all Protestant countries, England, Holland, and America; and even Rom. Catholic France, which has no theology to contend for, shows the influence of the new movement. Renan (q.v.), who in his *Vie de Jésus* excited a vivid sensation, has followed up his first work by a series of volumes on the early history of Christianity. In England, during the 18th c., several valuable apologetic works were published, such as Lardner's *Credibility of the Gospel History*, and Paley's *Horæ Paulinæ*. In the early part of the 19th c. appeared Horne's *Introduction to the Study of the Scriptures*, frequently reprinted. Since then, Tregelles, Davidson, Westcott, and numerous other scholars, have entered the field; and it is not too much to affirm, that, among the more earnest British and American theologians, there exists at this moment a keener spirit of impartial inquiry, as regards the foundations of biblical criticism, than Britain has ever previously witnessed. The practical tendencies of the Anglo-Saxon mind long restrained it from interfering in what seemed to be a mere maze of unprofitable speculation; but now that its deep and vital relations to the groundwork of men's actual and possible beliefs have begun to be felt, these very practical tendencies are manifestly asserting themselves, and we may confidently anticipate a large measure of attention on the part both of clergy and of laity to this most important branch of knowledge.

EDITIONS OF THE BIBLE: HISTORY OF THE TEXT.—As both the Old and the New Testament were written in ancient languages, and transcribed in times when philological criticism hardly existed, the examination and comparison of various editions, with a view to obtain the greatest possible purity of text, forms an important part of theological study.

Text of the Old Testament.—The first duty of an impartial critic of this question is to lay aside both of the extreme and untenable opinions regarding the Hebrew text of the Old Testament, viz: 1st, that it has come down to us in an absolutely faultless condition, by miraculous preservation; and 2d, that it has been wilfully and unscrupulously falsified by the Jews. That there are erroneous readings, nobody doubts. The real task devolving on a student of this branch of theological science is to explain these on natural principles, and, by collating the various recensions, to endeavor to obtain a pure text, or as close an approximation as possible. The following is a reasonably complete classification of the causes of errors. 1. Errors arising from *imperfect sight or occasional inattentiveness*; as when transcribers substituted one letter for another similar in appearance, transposed letters, words,

and sentences, and omitted the same; of which there are various examples. 2. Errors arising from *imperfect hearing*, of which there are not many examples. 3. Errors arising from *defective memory*; as when a transcriber fancied that he knew certain words, phrases, or clauses, on account of their having occurred before; of these there are occasional examples. 4. Errors arising from *defective judgment*; as when words were wrongly divided, or abbreviations wrongly resolved; also from the *custodes linearum* (i.e., the letters which filled up the occasional vacant space at the end of lines) and marginal remarks being sometimes incorporated with the text. These not unfrequently happen. 5. Errors arising from a *well-meant desire* on the part of the transcriber to explain or amend a text, really or apparently obscure. In this respect the Samaritans are greatly to blame. A very knotty point is, the condition of the text before and at the close of the canon. The opinion of Eichhorn, De Wette, and others is, that while the books circulated singly in a sphere of uncertain authority, they were greatly corrupted; in support of which considerable evidence is adduced, but still the probabilities are, on the whole, against such a supposition, and it is probably better to suppose that the conflicting accounts of the same events which are to be met with, especially in the historical books, arise not from the carelessness or corruptions of copyists, but rather from the original authors or compilers having consulted different documents.

From recent investigations, it appears clear that the strict dogmatic Jews of Palestine and Babylon were generally far more careful in their preservation of sacred records than the Samaritans and the Alexandrines, the latter of whom were remarkable for their free, philosophizing, non-textual spirit. In the schools of learning in Jerusalem at the time of Christ, presided over by Hillel, who had come from Babylon, and Shammai, and in those which flourished elsewhere in Palestine, after the fall of the metropolis, for instance, at Lydda, Cæsarea, Tiberias, etc., as also in the academies of Sora, Pumpeditha, and Nahardea, near the Euphrates, at a later period, the text of the Old Testament was defined with great care, first by the Talmudists, who seem to have adhered very closely to the ancient text, and after the completion of the Talmud at the close of the 5th c. by the *Masorites*. See MASSORAH. This care was at first bestowed only on the consonants of the Hebrew text. The Masoretic vowel system, which sprang from that already existing among the Syrians and Arabians, was developed from the 7th to the 10th c. at Tiberias. By the 11th c. it appears to have been completed, while the Spanish rabbis of the next c. seem ignorant of its then recent origin. (For proof of this, see Davidson's *Text of the Old Testament Considered*, 1856.) After the 11th c., the Masoretic text, with its perfected system of vowels and accents, became the standard authority among Jewish scholars. The comparative values of the different readings in the various MSS. had by that

time been carefully determined, and the chief business of copyists, henceforth, was to make faithful transcripts.

The earliest printed editions of the Hebrew B. bear a close resemblance to the MSS. 'They are without titles at the commencement, have appendices, are printed on parchment with broad margin, and large ill-shaped type, the *initial* letters being commonly ornamented either with wood-cut engravings or by the pen. These letters, however, are often absent. With vowels, the editions in question are very imperfectly supplied. Separate parts of the B. were first printed.' The Psalms appeared in 1477, probably at Bologna; the Pentateuch at Bologna, 1482; the Prophets, 1487; the Hagiographa, 1487. To most of these were subjoined the rabbinical commentary of Kimchi. The whole of the Old Testament appeared in small folio at Soncino, 1488, and seems to have been followed by the edition of Brescia (1494), used by Luther in his translation of the Old Testament. The *Biblia Polyglotta Complutensia* (1514-17), the *Biblia Rabbinica* of Bomberg, edited by Rabbi Jacob-Ben-Chajim (Venice, 1525-6), adopted in most of the subsequent editions—the Antwerp *Biblia Polyglotta* (8 vols., 1569-72), also the editions by Hutterus (Hamburg, 1587. and frequently reprinted), Buxtorf (Basel, 1611), and especially that by Jos. Athias (Amsterdam, 1661-67)—all these are celebrated, and have supplied the basis of later editions by Simon, Hahn, Theile, and others. In the 17th c., a vehement controversy arose regarding the integrity of the Hebrew text; one party maintained that the Masoretic text was greatly corrupted, and contrasted it unfavorably with that of the Samaritan Pentateuch. The chief advocates of this view were Vossius, Whiston, Morin, and Capellus. On the other hand, Buxtorf, Arnold Bootius, Wasmuth, and others, defended the absolute purity of the Masoretic text, even to the inspiration of the vowel-points, which Buxtorf, in the preface to his grandfather's *Tiberius*, gravely asserts to have been first invented by Ezra. This controversy had at least one good result. It led to an extensive examination of Hebrew MSS. in the next c. Kennicott collated 630, 258 of which throughout, the rest in part; De Rossi, 751, of which all but 17 were collated for the first time. Many still remain uncollated. The result of this elaborate investigation has been to convince scholars that the Masoretic text is substantially correct. All known codices confirm it; the oldest of the professedly literal versions, as well as the Targums of the time of Christ, furnish similar satisfactory evidence; and when we consider the *bibliolatrous* tendencies of the Jews *after* their return from exile, whatever may have been the case before, it may be safely concluded that the text of the Old Testament is now much in the same condition as at the close of the canon.

At first, there were no intervening spaces between Hebrew words; afterwards, small intervals appear to have been occasionally allowed. With the introduction of the *square* character, the use of small interstices to separate words became general. The Talmud prescribes how

much space should be between words in sacred MSS. designed for the synagogue. Various divisions according to the sense were also introduced at an early period. In the Pentateuch there were two, termed respectively *open* and *closed*. This former were intended to mark a change in the matter of the text; the latter, slight changes in the sense. Of these, the Pentateuch contained 669, named *parshioth* (sections). This division is probably as old, or nearly so, as the practice of reading the Law. It is found in the Talmud, while the division into 54 *great parshioth* is found first in the Massorah, and is not observed in the rolls of the synagogues. The poetical books also were subjected, from a very early period, to a stichometrical division, according to the peculiarities of Hebrew versification. In order to facilitate the reading and understanding of the prose books, a division into logical periods was also made, mentioned in the *Mishna* (q.v.), while in the *Gemara* (q.v.) its authorship is ascribed to Moses. From it sprang our present division of the Scriptures into verses. It is highly probable that these divisions were long handed down orally. Our present division of the Old Testament into chapters is a later invention, and though accepted by the Jews, is of Christian origin: it may be dated as far back as the 13th c., some assigning it to Cardinal Hugo, others to Stephen Langton, Abp. of Canterbury. It was first employed in a concordance to the Vulgate, whence it was borrowed by Rabbin Nathan in the 15th c., who made a similar concordance to the Hebrew Bible. Nathan's divisions are found in Bomberg's Hebrew B. of 1518. Verses were introduced into editions of the Hebrew B. first by Athias of Amsterdam, 1661, but were employed in the Vulgate as early as 1558. The first *English B.* divided into verses was published at Geneva, 1560.

New Testament.—The original MSS. of the New Testament were all probably written on papyrus, the cheapest, but least durable material that could be obtained for the purpose. It was therefore impossible, considering the constant handling to which the documents must have been subjected by the eager converts, that they could have lasted for any long time. Indeed no authentic notices of them have come down to us, and it is a curious fact that, in the controversies of the 2d c., no appeal is made to the apostolic originals. But the number of copies was very great. The text of these, however, did not always agree. Variations originated, to a considerable extent, from the same causes as operated in the case of the Old Testament, viz., imperfect vision or hearing, misunderstanding, carelessness, or an uncritical judgment on the part of transcribers; but it is natural to suppose that, on account of the greater freedom of spirit and thought which characterized primitive Christianity, compared with Judaism, a latitude of conviction in regard to the value of the *letter* of Scripture also influenced the churches. The *idea* of inspiration (q.v.), it is now admitted by the most enlightened theologians, was progressively developed. In the earliest ages it did not exist in any dogmatic form whatever.

Christians were content to believe that the evangelists and apostles spoke *truth*, by the help of the Holy Spirit, without perplexing themselves with the question, whether the words were purely divine or purely human in their origin. They had a gospel to preach, and a world to convert, and were therefore not in a mood to discuss mechanical notions. This also must have operated in producing the textual variations referred to, many of which are of such a nature as to clearly prove that the commentators or transcribers thought themselves at liberty to alter or improve the expression. Nor must the fact be overlooked that the different culture and tendencies of the Eastern and Western churches also caused very considerable changes. Modern criticism reckons no less than 80,000 variations in the existing MSS. Nevertheless, one fact stands out, solid and incontrovertible, amid all the tiny fluctuations of verbal criticism, viz., that, with one or two exceptions, no material difference exists, or in all probability ever did exist, in New Testament MSS. The *general* Christian consciousness, which was the real guardian of their integrity, had been grounded too deeply in the facts, doctrines, and ethics of an historic Christianity to follow in the wake of sectarian or heretical modifications of the truth. It instinctively turned, as it were by a sense of affinity, to those apostolic records, the tone of which most closely corresponded to its own spiritual character and development, and thus unconsciously prevented any incongruous changes from being effected in the mass of MSS. Of these MSS., upwards of 1,400 are known to scholars, and have been collated, and no essential discrepancy has been detected. Of course, it can be urged that all the MSS. belong to a period when the Church had gathered itself up into two great wholes—the Latin and Greek, and when, therefore, a general conformity in MSS., as in other things, is only to be expected; but the fragments which are found in the earliest Church Fathers exhibit substantially, though not verbally, the same text, and we may therefore fairly infer that this unintentional harmony in part argues the general harmony of the earlier and later MSS.

Some slight attempts seem to have been made, during the early history of the Church, to obtain a correct text. One Lucian, a presbyter of Antioch, and Hesychius, an Egyptian bishop, are said by Jerome to have undertaken a recension of the New Testament, and both Origen and Jerome himself were of considerable service in this respect. It is to modern criticism, however, that we owe almost everything in regard to the regulation of the text. Bengel and Semler first started the idea of arranging the MSS. of the New Testament into *families* or *classes*. After these came Griesbach, who, following out the idea, propounded his famous threefold division of the MSS. into Western, Alexandrian, and Byzantine. The first two he considers the oldest; the third, a corrupt mixture of both. Griesbach himself preferred the Alexandrian; he believed that the Byzantine transcribers had taken great liberties

with the text, and held that a few Alexandrian MSS. outweighed, in critical value, a large number of the other. The accuracy of Griesbach's division has subsequently been questioned by many eminent German scholars, each of whom has in turn favored the world with a theory of his own in regard to the probable value of the various families of MSS. Recently, Lachmann has applied, with excessive strictness, a principle first hinted by Bentley, viz., that no weight ought to be attached to any MSS. except those written in the old or uncial (q.v.) character. The exact value of each manuscript is still a matter of dispute; but a great deal has been done to place the knowledge of the various lines of evidence within the reach of all scholars. Tischendorf carefully examined the most important of the uncial MSS., and published them separately somewhat after the fashion of a fac-simile. He also published a fac-simile of the *Codex Sinaiticus*, which he found in a monastery in Mount Sinai. Scrivener has collated a considerable number of cursives, and collated again the *Codex Bezae*. And great attention is being paid to quotations from the Fathers. Rönisch, for instance, has given all the quotations from the New Test. in Tertullian (q.v.), and Tischendorf (q.v.) made use of them in his last or eighth edition.

The whole of the New Testament was first printed in the Complutensian Polyglott, 1514. From 1516 to 1535, five editions appeared at Basel, under the care of Erasmus, but without any great pretensions to critical accuracy. The subsequent numerous editions were, for the most part, founded on the editions of Erasmus or on the Complutensian, or on a collation of both. Among these editions were those of Simon de Colines or Colinaeus (Paris, 1543), of the elder Stephens (1546, '49, '50), of the younger Stephens (1569). Beza was the first who, by several collations founded on the third edition by Stephens, made any considerable progress in the critical treatment of the text, and thus supplied a basis for the present received text (*textus receptus*), which was first printed by Stephens with the Vulgate and critical annotations at Geneva, 1565; afterwards was frequently reprinted by Elzevir (Leyden, 1624) and others. The labors of the English scholar, Walton, in the London Polyglott (1657), of Fell (Oxford, 1675), and especially Mill (Oxford, 1707), were of great importance for the criticism of the New Testament. Bengel exhibited great tact and acumen in his edition of 1734, Wetstein much industry and care in the editions of 1751-2, as also Semler, 1764. But all these recensions were surpassed in value by the labors of Griesbach (1st ed. 1774; 2d and best ed. 1796-1806). The works of Scholz (1830) and Rinck (1830-36), the addition by Lachmann (1831), and the labors of Buttmann (1842-50), are worthy of praise, as are also those of Tregelles (1854-53), Tischendorf (1841-73), and Scrivener (1861). The long-expected edition of the Greek text of the New Testament by Westcott and Hort, with an elaborate introduction, appeared in 1881 (2 vols.), and though it has been sharply attacked by some eminent

critics, has taken the highest place in the estimation of scholars generally.

Among the MSS. of the New Testament, the oldest are not traced back further than the 4th c., and are written in the so-called *uncial* characters. The modern MSS., dating from the 10th c. downwards, are distinguished by the *cursive* characters in which they are written. The most important MSS. are the *Codex Sinaiticus* (at St. Petersburg), the *Codex Alexandrinus* (in the British Museum), *C. Vaticanus* (in the Vatican at Rome), *C. Ephræmi* (in the Imperial Library at Paris), and *C. Cantabrigiensis*, or *C. Bezae* (given by Beza to the Univ. of Cambridge). On the discovery of the *Codex Sinaiticus* by Tischendorf at the monastery of St. Catharine, Mt. Sinai, 1844 and 59, some deemed it older than even the *Vaticanus*; now, both are usually referred (as by Westcott and Hort, 1881) to the middle of the 4th c. *C. Ephræmi* and *C. Alexandrinus* are probably of the 5th c., as are two fragments. *C. Bezae* and numerous fragments date from the 6th c.; the 7th c. furnishes but a few fragments. But the MSS. of the 9th and 10th centuries furnish as many as all the preceding ones put together. The *cursive* MSS., numbering nearly 1,000, range from the 9th to the 16th c.

Euthalius (462) arranged those words that were related to each other by the sense into *stichoi* or lines. Subsequently, to save space, a colon or point was substituted, until, finally, a complete system of punctuation arose. In the 13th c., as we have already seen, the division into chapters took place, and in the 16th the versicular division was perfected by Stephens. The arguments or contents prefixed to the several chapters are also of modern origin.

B. Versions or Translations.—These may be divided into ancient and modern. The *ancient translations* of the Old Testament from the original Hebrew may be classed as follows: 1. *Greek*.—The earliest of these is the Alexandrine or Septuagint (q.v.), after which come respectively the translations by Aquila (q.v.), Theodotion, and Symmachus. The whole of these, with fragments of others by unknown authors, were given by Origen in his *Hexapla* (q.v.). The *Versio Veneta*, a Greek translation of several books of the Old Testament, made in the 14th c., and preserved in the St. Mark's Library, Venice, was published by Villoison at Strasburg, 1784. Several early versions were also based on the Septuagint; but for that reason do not possess an independent value, being for the most part only translations of a translation. Among these are the old Latin version or *Italic* (q.v.), though the term *Italic* is strictly applicable to the New Testament only, improved by Jerome (382): the Syriac, including the *Versio Figurata*, partially preserved and collated by Jacob of Edessa, in the beginning of the 8th c.; and that by Paul, Bishop of Tella (617): the *Ethiopic*, made by certain Christians in the 4th c.: the threefold *Egyptian* (3d or 4th c.), one being in the language of Lower Egypt, and termed the *Coptic* or *Memphitic*; another in the language of Upper Egypt, and termed

the *Sahdic* or *Thebaic*; and a third, *Basmuric*, whose locality is uncertain: the *Armenian*, by Miesrob and his pupils in the 5th c.: the *Georgian*, of the 6th c.: the *Slavonian*, commonly ascribed, but for unsatisfactory reasons, to the missionaries Methodius and Cyrillus in the 9th c.: the *Gothic*, ascribed to Ulphilas, and executed in the 4th c., only some few fragments of which are extant: *lastly*, several Arabic translations of the 10th and 11th.—2. The *Chaldaic translations* or *Targums*. These had an early origin; but, with the exception of those of Onkelos and Ben Uzziel, are unsatisfactory in a critical point of view. See TARGUM.—3. The remarkably literal translation into the Aramaic dialect of the later Samaritans, of the ancient copy of the Pentateuch, possessed by the Samaritans (see SAMARITAN PENTATEUCH).—4. The Church translation, known as the *Peshito* (q.v.), received by all the Syriac Christians. It was undoubtedly executed from the original Hebrew text, to which it closely adheres. Several Arabic versions were founded on the *Peshito*.—5. The later Arabic versions, executed during the middle ages, partly from the Hebrew text, and partly from the Samaritan Pentateuch.—6. The Persian translation of the Pentateuch made by a Jew named Jacob, not earlier than the 9th c.—7. The Latin Vulgate (q.v.), from which a considerable number of fragmentary versions were made into that form of English commonly called Anglo-Saxon, the most noted translators being Aldhelm, Bishop of Sherborne, and Bede (8th c.); Alfred (9th c.); and Ælfric (10th c.).

Among ancient versions of the New Testament may be noticed three in Syriac: the first is the *Peshito*, with a two-fold secondary translation of the four gospels into Arabic and Persian. It does not, however, contain 2 Peter, 2 and 3 John, Jude, or the Apocalypse, which, at a later period, were classed among the *antilegomena*, or disputed books. The second, or *Philoxenian*, prepared 508, under the direction of Philoxenus, Bishop of Hierapolis. It no longer exists, but a counterpart of it does, in the translation made in the following century (616) by Thomas of Harkel or Heraclea, successor of Philoxenus. The best MS. of this version is one which belonged to Ridley, and is now in the archives of the New College, Oxford. It includes all the books of the New Testament excepting the Apocalypse. The style is slavishly literal. It was edited by White, Oxford, 1778. The third, or Jerusalem-Syriac version, preserved in a Vatican MS., and, according to the subscription annexed to it, executed at Antioch 1031. With the above Syriac version we may class the Ethiopic translation; the Egyptian threefold version, made probably in the latter part of the 3d c., and of considerable critical value; the Armenian, Georgian, Persian, and Coptic-Arabic. Besides these may be mentioned the old Italic; the Vulgate by Jerome; the Gothic translation by Ulphilas (about the middle of the 4th c.), of which the most famous MS. is preserved in the library of Upsal, in Sweden (this has only the four gospels, and not even these in perfect condition); the various Anglo-Saxon versions already

mentioned in connection with versions of the old Testament; and the Slavonic.

Modern Translations.—During the middle ages, when the laity were considered by the priesthood unfit to be intrusted with the B. as a whole, various poetical versions—such as the Gospel History, by Otfried von Weissenburg, and the version of Job and of the Psalms by Notker-Labeo (980)—served a very important object, and stimulated the desire for more biblical information. As early as 1170, Petrus Waldus caused the New Testament to be translated into the Provençal dialect by Etienne d'Ansc. This important work was followed by the translations made under Louis the Pious (1227) and Charles the Wise (1380), the B. Histories (*Bible ystorieus*) by Guyars of Moulins (1286), the Spanish version under Alfonso V. in the 13th c., the English by Wicliffe, and the Bohemian version of John Huss. After the invention of printing—especially after the latter part of the 15th c.—the harbingers of a new ecclesiastical era appeared in numerous republications of the translated B.—the Bohemian (Prague, 1448); the Italian, by the Benedictine Nic. Malherbi (1471); the French, by Des Moulins (1477–1546); the Dutch (Delf, 1477); the Spanish (1478–1515); but, above all, in the seventeen German translations before Luther, of which five were printed before 1477, and the remainder in the Low-German dialect during 1477–1518.

Luther's translation of the B. is universally esteemed by the best German scholars as a masterpiece of genial interpretation. It has qualities far superior to those ordinarily expected in a translation—deep insight, true sympathy with the tone of the Hebrew Scriptures, and a perfect command of clear, popular language; indeed, every one who can thoroughly appreciate the merits of this great work will be ready to excuse the boldness of the assertion, that 'it was rather a re-writing than a mere translation of the B,' a transfusion of the original spirit into a new language, rather than a mere version of the letter. The New Testament was finished by Luther at Wartburg, and appeared 1522, Sept. In the following year, the five books of Moses appeared; and, 1534, the remaining part of the Old Testament canon was completed with the Apocrypha. With wonderful rapidity, this translation was circulated throughout Germany. In forty years, one Wittenberg bookseller sold 100,000 copies. It was reprinted thirty-eight times in Germany before 1559, and meanwhile the New Testament had been printed seventy-two times. Numerous other translations in Dutch, Swedish, etc., were based upon the work of Luther.

English Translations.—As above mentioned, portions of the B. were translated into Anglo-Saxon by Aldhelm, Egbert, Bede, and others between the 8th and 10th c. An English version of the Psalms was made 1290. Wicliffe (q.v.), founding on the labors of predecessors, finished his noble version of the New Testament from the Vulgate 1380, and completed the Old (begun by Nicholas and Hereford) a little later. Revisions of this translation by

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Purvey and others were widely circulated in MSS. But long after Germany had printed vernacular versions of parts of Scripture, England had none. The seven penitential psalms were apparently printed 1505. The noble martyr, William Tyndale (q.v.), vowed that 'if God would spare his life, ere many years he would cause the boy who driveth the plough to know more of the Scriptures than did all the priests.' To accomplish his purpose, he passed over to the continent. Before 1526, he had completed an English translation of the New Testament, which appeared both in quarto and duodecimo. In the beginning of 1526, the volumes were secretly conveyed into England, where they were bought up and burned, which, however, only stimulated Tyndale to greater exertions. Of the admirable character of his translation, we have a sufficient testimony in this fact, that in the version of 1611, in common use, known as King James' version, a very large portion of the New Testament is taken almost *verbatim* from Tyndale's Testament. Tyndale next proceeded to prepare a version of the Old Testament out of the original Hebrew, and in 1530 he published the Pentateuch, and in the following year the book of Jonah. The first English version of the whole B. was that published by Miles Coverdale, a friend of Tyndale. It is dated 1535, and dedicated to Henry VIII., but where printed, is unknown. It is much inferior to Tyndale's. The next English B. issued was called *Matthew's B.*, from the circumstance that the editor assumed the name of Thomas Matthew, but was simply Tyndale's version revised by his friend John Rogers, who also translated those books in the Old Testament which the martyr had not been able to overtake. It was finished 1537, and Cranmer obtained for it the patronage of Henry, though that monarch had persecuted Tyndale some years before. Matthew's B. soon superseded Coverdale's. In 1539, April, appeared the *Great B.*, usually called Cranmer's, because he wrote a preface to it. It was a large volume for use in churches. The text was Tyndale's revised. In the same year, Richard Taverner, a learned but eccentric layman belonging to the Inner Temple, published an edition, the text of which is based on that of Matthew's Bible. In 1557 appeared the famous *Geneva B.*, so called because the translation was executed there by several English divines, who had fled from the persecutions of the bloody Mary. Among these were Gilby and Whittingham. This edition—the first printed in Roman letter and divided into verses—was accompanied by notes, which showed a strong leaning to the views of Calvin and Beza. It was, in consequence, long the favorite version of the English Puritans and the Scotch Presbyterians. It is, however, best known as the *Breeches B.*, on account of the rendering of Genesis iii. 7: 'Then the eyes of them both were opened, and they knew that they were naked, and they sewed fig-tree leaves together, and made themselves *breeches*.' In 1568, the *Bishops' B.* was published at London. The text of this was compared with the original by eight bishops, and seven other scholars of reputation,

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who appended their initials to their respective tasks; the whole being under the superintendence of Matthew Parker, Abp. of Canterbury. In 1582 appeared at Rheims, in France, an English version of the New Testament, prepared by several Rom. Cath. exiles; and in 1609-10, a similar version of the Old Testament at Douay. Both were taken from the Vulgate, and form the standard English Scriptures of the Rom. Catholics, being generally known as the *Douay Bible*.

We now come to the version which has been in common use for nearly 250 years, generally called *King James' Bible*. At the Hampton Court Conference, 1604, Jan., Dr. Rainolds, an eminent Puritan, suggested a new translation as a great national want; and this, though opposed by the Bishop of London, was sanctioned by the king. Arrangements were at once made for carrying out the project. In July, the king wrote a letter, intimating the appointment of 54 scholars for the preparation of the version, and instructing the bishops that whenever 'a living of twenty pounds' became vacant, they should inform his majesty of the circumstance, in order that he might recommend one of the translators to the patron. This was all that James did on behalf of the translation which bears his name. The expenses seem to have been borne by Barker, the printer and patentee, who paid the sum of £3,500. Of the 54 scholars who had been nominated to the work, only 47 undertook it. These were divided into six companies, two of which were to meet at Westminster, two at Cambridge, and two at Oxford. The *first* company at Westminster translated the Pentateuch and the historical books to the end of 2 Kings; the *first* at Cambridge, from the beginning of Chronicles to the end of Canticles; and the *first* at Oxford undertook the remaining books of the Old Testament canon. The second company at Westminster translated the apostolic epistles; the second at Cambridge, the Apocrypha, and the second at Oxford, the gospels, the Acts of the Apostles, and the Apocalypse. According to Selden, 'they then met together, and one read the translation, the rest holding in their hands some B. either of the learned tongues, or French, Spanish, Italian, etc. If they found any fault, they spoke; if not, he read on.' When a portion was finished by one of the company, it was sent to all the others in succession for their deliberative examination; and whenever a difference of opinion was elicited, reference was made to a committee. The final revision of the whole was conducted in London by two delegates from each of the six companies. These twelve scholars, in the discharge of their critical functions, met daily for nine months in the old hall of the Stationers' Company. The work of translation and revision occupied from 1607 to 1610. The superiority of the authorized version soon proved itself; for though there were several rivals in the field, and no steps were taken to secure for it a preference, it quickly gained the foremost place, and in the course of forty years from its publication all others had quietly succumbed to it; it became, and has since re-

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mained, *the English Bible*. Its ascendancy, and its exclusive use among all classes in Britain and its colonies, and in the United States, can be traced only to its intrinsic excellence. A Revision Company, pursuant to appointment in the convocation of Canterbury, 1870, May 6 (to which a company of American Revisers was subsequently added), commenced its labors 1870; and the New Testament was issued in Britain and America 1881, the Old 1885. See BIBLE, CANTERBURY REVISION OF THE.

The exclusive right to print the present authorized version has, in Britain from the first, been claimed by the crown; and only under this royal prerogative the B. is printed in different forms, and sold wholesale by certain patentees and licensees, in England, Scotland, and Ireland. This claim, which does not practically affect Bibles with notes, has lately been much remonstrated against as a monopoly injurious to the free circulation of the Scriptures at a moderate price, and a modification is now looked for (see BOOK-TRADE). In the United States, the publication is free.

The more liberal Rom. Catholics—especially the Jansenists De Saey, Arnauld, and Nieole; the enlightened Richard Simon and Quesnel—also shared in the common zeal for diffusing a knowledge of the Scriptures; but though many versions have been prepared by Rom. Catholics, the Roman Church has consistently maintained an opposition to the general circulation of Holy Scripture without ecclesiastical comments.

The numerous recent translations of the Scriptures into languages beyond the pale of Christendom have been executed chiefly under the auspices of missionary and Bible societies (q.v.).

As to the *contents* of the B., its one grand object, under whatever form it may appear in the various books, is, to give an account of this world, both in its origin and government, as the work of an Almighty Creator, always and everywhere present; and especially to exhibit the relation of man to this Creator, and, in consequence of that relation, in what manner, and with what hopes he ought to live and die—subjects undeniably the most momentous that can occupy human thought. The sacred books of other religions all have an analogous aim; to account, namely, for the origin of all things, and to explain the nature and human relations of that something *divine*, which it is an instinct of the human mind to conceive as actuating and controlling all that moves. But so different—so immeasurably superior to all other sacred books is the B. in the conception which it unfolds of the Divine Being as one personal God, exercising towards men the love and care of a parent to his offspring, and in the system of human duties springing therefrom, that on this consideration alone many rest its claim to being received as a direct revelation from heaven. For the questions regarding the B. considered in this point of view, see INSPIRATION: REVELATION. For the leading features of the doctrines and precepts, as a system, see CHRISTIANITY: for the chief individual doctrines, see their respective titles, and the accounts of the controversies to which they have given rise.

BIBLE SOCIETY: an association having for its object the diffusion of the sacred Scriptures. A long period elapsed after the Reformation before a B. S. was formed; though there had been extensive diffusion of the Scriptures. Probably the first assoc. for this sole and specific purpose was founded by Baron Hildebrand von Canstein, an intimate friend of Spener, in conjunction with Francke at Halle, and which, to 1834, when other Bible societies had begun to be established in Germany, had distributed 2,754,350 copies of the Bible, and about 2,000,000 copies of the New Testament.—The impulse, however, to the formation of the Bible socs. now existing in all parts of Protestant Christendom proceeded from England, where, 1780, an assoc. was formed for distribution of Bibles among soldiers and sailors; at first simply called *The B. S.*, now known as the *Naval and Military B. S.*, and confining itself to its original specific object. In the beginning of 1792, a similar assoc. was formed in London, the *French B. S.*, with a similar specific object of distributing Bibles in the French tongue. Its funds and all its property, being in Paris, were lost or destroyed during the tumult of the Revolution.

In 1802 the first steps were taken toward the formation of the BRITISH AND FOREIGN B. S., the parent of a multitude of similar institutions. It was organized 1804, Mar. 7. Its origin is traceable to the casual discovery by a minister in Bala, Wales, of a little girl in that town who was weeping because, after saving her earnings for some years to buy a Bible, she had walked 25 miles to procure one, only to find that the last one had been sold. This incident becoming widely known, revealed the need of an organization for supplying Bibles, not only in Wales, but wherever destitution existed throughout the world. The society was constituted on the widest basis, churchmen and dissenters being alike included; and soon attained its place by the side of the other two great religious societies, the *London Missionary Society* (see MISSIONS), and the *Religious Tract Society* (q.v.), formed a few years before. It was able to expend only £691 (about \$3,450) in its first year; but its annual income gradually increased; and amounted (1886) to £221,754 (about \$1,105,000). Auxiliary and branch societies and dependent associations rapidly sprang up in all parts of Britain, and in the colonies, the number of which is now 5,000—6,000. Much more than one-half of the expenditure has been devoted to diffusion of the authorized English version of the Bible, the only English version with which its fundamental rules permit it to have anything to do; it prints and circulates the Scriptures also in the Celtic languages spoken in Great Britain and Ireland, and a very important branch of its operations has been the printing of translations prepared by missionaries. It has issued about 280 complete or partial translations of the Scriptures—many in languages possessing no previous literature: annual issue, 1895–6, 2,500,000. copies; total issue (to 1887) 112,253,547 copies. The question having arisen as to including the books of the Apocrypha (q.v.), the soc. formally resolved (1826) against it.

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The AMERICAN B. S. is, in the magnitude and importance of its operations, next to the British and Foreign Bible Society. It was founded at New York, 1817, and has its headquarters in that city in the '*Bible House*,' a large and commodious building, erected by special subscription. It reckons fully 7,000 auxiliary societies, in all parts of the United States. Its income now amounts to about \$700,000 a year, rather more than one-half being derived from sales of Bibles and Testaments, and the rest from donations, collections, etc. The American B. S. has for some time issued annually more than 1,750,000 Bibles, New Testaments, and other portions of Scripture, and had to 1896 distributed about 62,000,000 copies. The funds of the soc. have been expended chiefly in supplying the wants of the inhabitants of the United States, among whom the Indian tribes have not been neglected. 'The Bible Association of Friends in America,' founded at Philadelphia, 1829, has also distributed the Bible extensively.

THE AMERICAN AND FOREIGN BIBLE SOCIETY was founded in Philadelphia (1837), by a convention of Baptists, whose purpose was to prepare and circulate translations of the Scriptures in which the Greek words *baptismos* and *baptizo* should be not transliterated into 'baptism' and 'baptize,' as in the 'authorized English version' of the American Bible Soc., but translated into 'immersion' and 'immerse.' This action had reference to translations into foreign languages for missionary work—the new soc. continuing to circulate the 'authorized English version.'

THE AMERICAN BIBLE UNION was formed 1850 by Baptists dissatisfied with the policy above noted, and aiming to extend the same principle to the Eng. version also. The Union energetically promoted an excellent revision of the Eng. Bible on their principles, by Thomas J. Conant, D.D.

The two socs. were merged into the AMERICAN BAPTIST PUBLICATION SOCIETY 1883. Their revised New Test. has been published: the revision of the Old Test. is proceeding under superintendence of William R. Harper, D.D., pres. of Chicago University.

Of the numerous Bible socs. of Germany, the most important and extensively ramified is the Prussian Central B. S. (*Hauptbibelgesellschaft*), Berlin. It was founded 1814, has branches in all parts of the Prussian dominions, and distributes annually about 35,000 Bibles and 14,000 New Testaments. There are numerous independent Bible socs. in other parts of the German empire. Bible socs. were prohibited by the Austrian govt. 1817, and some which had already been established in Hungary were dissolved.—The RUSSIAN B. S., founded at St. Petersburg, 1813, through the exertions of Dr. Paterson, and under the patronage of the emperor Alexander I., entered upon a career of great activity and usefulness, co-operating with the British and Foreign B. S. for the printing of the Scriptures in the numerous languages spoken within the Russian dominions; but its operations were suspended, 1826, on the accession of the emperor Nicholas, its stock of Bibles and the whole con-

cern, being transferred to the *Holy Synod*, under the pretense that the sacred work of supplying the people with the Holy Scriptures belonged to the Church, and not to a secular society. The Bibles and Testaments in stock were indeed sold, and very large editions were thus disposed of, but the activity of a society which had no equal in continental Europe was at an end. A Protestant B. S. was then formed for the purpose of providing editions of the Scriptures, and circulating them among the Protestants of all parts of the empire, which now reckons about 300 auxiliary societies. But the action of this society 'does not touch the members of the Greek Church, or, if at all, only slightly and incidentally, and it makes no provision of the Scriptures in the language spoken by the great mass of the people. It is merely designed to meet the wants of colonists and others, who do not use the Russian language.' Of the translations of the Scriptures published by the original Russian B. S., the greater number have never been reprinted since its suppression.

BIBLIANDER, *bib'li-an-dér*, or BUCHMAN, THEODORE: 1504-64; b. Bischofzell: Swiss clergyman and orientalist. He was Zwingli's successor in the professorship of Protestant theology at Zurich (1532), but having held a belief concerning the doctrine of predestination and the freedom of the will at variance with that held by the Protestants generally, he was suspended from his functions, 1560. He wrote numerous works on oriental subjects.

BIB'LIA PAUPERUM, *paw'per-üm*, or Bible of the Poor: a sort of picture-book of the middle ages, giving, on from forty to fifty leaves, the leading events of human salvation through Christ, each picture being accompanied by an illustrative text or sentence in Latin. A similar and contemporaneous work on a more extended scale, and with the legend or text in rhyme, was called *Speculum Humanæ Salvationis*, i.e., the 'Mirror of Human Salvation.' Before the Reformation, these two books were the chief text-books used, especially by monks, in preaching, and took the place of the Bible with the laity, and even with the clergy; and as the lower orders of the regular clergy, such as the Franciscans, Carthusians, etc., took the title of 'Pauperes Christi,' Christ's Poor, hence the name. Many manuscripts of the *B. P.*, and of the *Mirror of Salvation*, several as old as the 13th c., are preserved in different languages. The pictures of this series were copied in sculptures, in wall and glass painting, altar-pieces, etc., and thus become of importance in the art of the middle ages. In the 15th c., the *B. P.* was perhaps the first book that was printed in the Netherlands and Germany, first with blocks, and then with types. The chief proof for the discovery of printing in Haarlem rests on the first impressions of the *Speculum Humanæ Salvationis*. See COSTER.

BIBLICAL ANTIQUITIES, or BIBLICAL ARCHEOLOGY: a study which has for its objects the social and political constitution, the manners, customs, geography, etc. of the Jews and other peoples mentioned in the Scriptures. A knowledge of these is essential to a right understanding

of many passages of Scripture. The antiquities of the ancient Jews themselves undoubtedly form the most important part of such a study; but an examination of the laws, customs, etc., of the neighboring Semitic nations is likewise indispensable. The principal sources of such knowledge are the Old and New Test.; the books of Josephus on *Jewish Antiquities* and the *Wars of the Jews*; the writings of Philo, the Talmud and Rabbinical works; and, lastly, Greek, Roman, and Arabian writers, with medals, monuments, and other works of art, the accounts of travellers, etc. The first work on Hebrew archeology was Thomas Goodwin's *Moses et Aaron, seu Civiles et Ecclesiastici Ritus Antiquorum Hebr.* (Oxford, 1616). German works on the subject are those of the handbooks by Jahn, Bauer, Rosenmüller, De Wette, Ewald, Saalschütz, Roscoff, and Keil; and the biblical dictionaries of Winer (1848), Schenkel (1875). Convenient works of reference for English readers are Dr. Kitto's *Cyclopædia of Biblical Literature*, and his *Pictorial Bible*; Smith's *Dictionary of the Bible*, and *Dictionary of Christian Antiquities*; Thomson's *Land and the Book*. See also the large map of Western Palestine, in 26 sheets, published by the committee of the Palestine Exploration Fund, with a memoir containing geographical, topographical, archeological, ethnographical, and geological particulars.

BIBLICAL CRITICISM, THE HIGHER: see HIGHER CRITICISM, THE. BIBLE,

BIBLIOGRAPHY.

BIBLIOGRAPHY, n. *bīb'li-ōg'ră-fī* [Gr. *biblŏn*, a book; *grapho*, I write]: the knowledge and history of books, especially of rare and curious ones. **BIBLIOGRAPHER**, n. *bīb'li-ōg'ră-fer*, one who is skilled in the knowledge and history of books. **BIB'LIOGRAPH'IC**, a. *-grăf'ik*, or **BIB'LIOGRAPH'ICAL**, a. *-i-kăl*, pertaining to the history of books. **BIBLIOLATRY**, n. *bīb'li-ōl'ă-trī* [Gr. *latrei'a*, worship]: book-worship, especially applied to an extreme reverence for the Bible. **BIBLIOLATRIST**, one who idolizes books; one who idolizes the Bible. **BIBLIOMANCY**, n. *bīb'li-ō măn'sī* [Gr. *mantei'ă*, prophecy]: divination by the Bible. **BIBLIOLOGY**, n. *bīb'li-ōl'ō-jī* [Gr. *logos*, discourse]: a treatise on books; biblical literature or theology. **BIB'LIOLOG'ICAL**, a. *-i-kăl*, pertaining to. **BIBLIOMANIA**, n. *bīb'li-ō-mă-nī-ă* [Gr. *manŏă*, madness]: a rage for the possession of rare and curious books. **BIB'LIOMA'NIAC**, n. *-nī-ăk*, one who has a rage for books. **BIBLIOPEGY**, n. *bīb'li-ōp'ē-jī* [Gr. *pēgnumi*, to make fast]: the art of binding books. **BIBLIOPHILE**, n. *bīb'li-ō-fil* [Gr. *phulos*, friend]: a lover of books. **BIBLIOPOLIST**, n. *bīb'li-ōp'ō-list*, and **BIB'LIPOLE**, n. *-pōl* [Gr. *polēō*, I sell]: a bookseller. **BIBLIOTHECA**, n. *bīb'li-ō-thē'kă* [Gr. *thēkē*, a case or box]: a repository for books; a library. **BIB'LIOTH'ECAL**, a. *-kăl*, pertaining to.

BIBLIOGRAPHY, *bīb-li-ōg'ra-fī*: the knowledge, history, and proper classification and cataloguing of books. It is derived from *bibliographia*, which was employed by the Greeks to signify the transcription of books, while *bibliographos* was merely a copyist. The introduction of the term in the meaning now attached to it may be dated from the appearance of the first vol. of De Bure's *Bibliographie Instructive* in 1763. The bare enumeration of the works on this branch of literature would more than fill an ordinary volume.

A favorite dream of bibliographers has been the production of a general catalogue, embracing the whole range of printed literature; and one attempt at least has been made to realize it. In 1545, Conrad Gesner published at Zurich, in one folio vol., his *Bibliotheca Universalis*, in which are described, under the names of the authors, arranged alphabetically, all the books in the Hebrew, Greek and Latin languages about which the compiler could obtain information. This restriction as to language, of course, does away to some extent with the idea of universality indicated by the title-page; still, as the three which are included were in Gesner's time almost the only ones employed by men of learning, his work may be regarded as a nearly complete account of the state of printed literature as it then existed. One other effort in this direction is the *Bibliotheca Britannica* of Dr. Robert Watt, four vols. 4to (Edinburgh, 1824). The following is an extract from the preface: 'The account given of British writers and their works is universal, embracing every description of authors, and every branch of knowledge and literature. What has been admitted of foreign publications, though selective, forms a very considerable and valuable portion

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of the work, and as none of note have been purposely omitted, the *Bibliotheca Britannica* may be considered as a universal catalogue of all the authors with which this country is acquainted, whether of its own or of the continent.' This great work was compiled under very adverse circumstances, and its author did not live to see it through the press. It thus labors under all the disadvantages of a posthumous publication; but with all its faults both of omission and commission, which are neither few nor small, it maintains a high character as a work of reference, and is indispensable to the library of every bibliographer.

The other laborers in this field of literature have confined themselves within narrower limits. Some, proceeding upon a principle of selection, endeavor to furnish the inquirer with the information which he seeks in regard to books which are rare, curious, or valuable; others aiming at greater completeness within certain bounds, restrict themselves to the description of a special class of works—the literature, for example, of a particular country or language; the productions of a celebrated press; the books published within a given period; those of which the authors have withheld their names, or have veiled them under a pseudonym; the treatises on a specific subject; and so on, together with a few which hardly admit of classification, but may be shown by examples.

Bibliographical works on the selective principle form a numerous class; the following are among the more important: Vogt, *Catalogus Historico-criticus Librorum Rariorum*, 8vo (Francofurti, 1793). This is the fifth edition; the four preceding appeared successively at Hamburg in 1732, '38, '47, '53. David Clement, *Bibliothèque Curieuse, ou Catalogue raisonné de Livres difficiles à trouver*, 9 vols. 4to (Göttingen, 1750–60). The expression *catalogue raisonné* is usually, but erroneously, applied in this country to classified catalogues; yet the work of Clement, who was the son of a Frenchman, and certainly understood the language in which he wrote, is arranged alphabetically. It is simply what it professes to be, a descriptive and methodized account of the books which it includes; but unfortunately it was never completed. It terminates with the article 'Hesiodus,' and the seven or eight vols. required to finish it have not been published. The *Bibliographie Instructive* of De Bure, already mentioned, extends to seven vols. 8vo, the last of which appeared 1768. To these should be added the *Catalogue des Livres de Gaignat*, 2 vols. 8vo (Paris, 1769), and the *Table destinée à faciliter la Recherche des Livres Anonymes*, 8vo (Paris, 1782). Ebert's *Bibliographisches Lexicon*, 2 Bde. 4to (Leip. 1821–30), is an accurate and useful work. It has been translated into English, 4 vols. 8vo (Oxford, 1837). Lowndes's *Bibliographer's Manual* contains an account of rare, curious, and useful books, published in or relating to Great Britain, from the invention of printing, and may always be consulted with advantage. It appeared originally in 4 vols. 8vo (Lond. 1834): but a new edition, with many improvements, has since been published (1857–64) in 11 parts or 6 vols.,

under the editorship of Mr. H. G. Bohn. One of the most interesting and important works in this department of B. is the *Manuel du Libraire et de l'Amateur des Livres* of J. C. Brunet, of which it is hardly possible to speak in terms of too high commendation. It was first published 1810, in 3 vols. 8vo; and the fifth edition, in 6 vols. 8vo (Paris, 1860-65), is now out of print. The sixth vol. contains a valuable classed catalogue, the only modern effort of this kind. Another work of a similar but somewhat more extensive character, entitled *Trésor des Livres Rares et Précieux*, by J. G. T. Graesse, was published at Dresden, in 7 vols. 4to (1859-69). In it more attention has been given to the northern literatures than in Brunet. To these may be added the amusing and instructive bibliographical works of the Rev. Dr. Dibdin.

Turning to special B., and taking its subjects in the order given above, we have to notice first the works which confine themselves to the literature of a particular country or language. As regards Great Britain, besides Watt and Lowndes, already mentioned, there are the *Typographical Antiquities* of Ames and Herbert, 3 vols. 4to (Lond. 1785-90.) A new and improved edition was projected by Dibdin, but was not completed. Vols. 1 to 4 only have appeared, 4to (Lond. 1810-19). A recent contribution to English B. is the *Critical Dictionary of English Literature and British and American Authors*, by S. A. Allibone, 3 vols. 8vo (Philadelphia, 1859-71)—a work of much labor, and covering a wide field, but lacking in exactness: it faithfully reproduces most of the errors of Watt, with the addition of not a few for which the compiler is responsible. French bibliophiles possess a treasure in *La France Littéraire* of J. M. Quérard, but it embraces only the 18th and 19th c. The continuation, begun by Quérard, afterward carried on by Louandre and Bourquelot, forms 6 vols. 8vo (Paris, 1846-57). A further continuation by Lorenz, *Cat. Général de la Librairie Française pendant 25 ans* (1860-65, 4 vols. 8vo, Paris, 1867-71), brings the work down to a recent date. For the literature of Italy may be noticed Gamba's *Serie de' Testi*, 4th ed. (Venice, 1839); and for that of Spain, the *Bibliotheca Hispana Vetus*, and the *Bibliotheca Hispana Nova* of Antonio, the latest and best editions of which appeared at Madrid (1783-88) in folio. The authors of the Low Countries are enumerated in the *Bibliotheca Belgica* of Foppens, 2 vols. 4to (Brussels, 1739); and those of Scandinavia in the *Almindeligt Litteraturlæxicon for Danmark, Norge. og Island*, of Nyerup and Kraft, 4to (Copenhagen, 1820). For Germany, are Heinsius, *Allgemeines Bücherlexicon*, with supplements (10 vols. 4to, 1812-49), and Kayser's *Vollständiges Bücherlexikon* (1750-1882; Leip. 1833-83). To this class also belong the *Bibliotheca Græca*, *Bibliotheca Latina*, and *Bibliotheca Latina Mediæ et Infimæ Ætatis* of Fabricius; Harwood's *View of the various Editions of the Greek and Roman Classics*; and Moss's *Manual of Classical Bibliography*. The Oriental student will find much to interest him in the *Lexicon Bibliographicum* of Haji Khalfa, edited in the

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original Arabic, with a Latin translation by Fluegel, 7 vols. 4to, 1835-58.

Of works descriptive of the productions of particular presses may be noticed Renouard's *Annales de l'Imprimerie des Alde* (3d ed., 8vo, 1834); the *Annales de l'Imprimerie des Estiennes*, by the same author (8vo, Paris, 1837-8); and Bandini, *Juntarum Typographice Annales*, 2 vols. 8vo (Luccæ, 1791). The student may also consult with advantage the *Notice de la Collection des Auteurs Latins, Français, et Italiens Imprimés en petits Formats par les Elzeviers*, at the end of the 5th vol. of Brunet's *Manuel*.

The bibliographers who have confined themselves to books printed within a given period are chiefly Panzer, *Annales Typographici ab Artis Inrentæ Origine ad Annum MD* (continued, however, to 1536), 11 vols. 4to (Norimbergæ, 1793-1803); and Hain, *Repertorium Bibliographicum*, 4 vols. 8vo, 1826-38. The death of the author before the completion of this work was the cause of the comparative inaccuracy observable in the 3d and 4th vols. The article 'Virgil,' for example, is omitted altogether.

One of the earliest attempts to reveal the authorship of anonymous works was the *Theatrum Anonymorum et Pseudonymorum* of Vincent Placcius, folio (Hamburg, 1708); to which Mylius added a supplement, 1740. So far as France is concerned, these both have been superseded by the admirable and well-known *Dictionnaire des Ouvrages Anonymes et Pseudonymes* of Barbier, 2d ed., 4 tom. 8vo (Paris, 1822-27). Italy has the *Dizionario di Opere Anonyme e Pseudonime di Scrittori Italiani* of Melzi, 3 vols. 8vo (Milano, 1848-59). Mr. Ralph Thomas's (*Olphar Hamst*) *Handbook of Fictitious Names* (1868) is a slight but useful production. A very copious and valuable work is the great *Dictionary of the Anonymous and Pseudonymous Literature of Great Britain* (vol. i., 1881), begun by Mr. Halkett, keeper of the Advocates' Library, Edinburgh, and continued by the Rev John Laing. To this branch of B. belong Weller's *Maskirte Literatur der älteren und neueren Sprachen*; Toinsot's (G. Heilly) *Dictionnaire des Pseudonymes* (1867); and De Manne's *Nouveau Dictionnaire* (1868). As an index to the articles in periodicals, the best guide is W. F. Poole's admirable *Index to Periodical Literature* (new ed. 1882).

Bibliographies which describe treatises on special subjects are very numerous; the following may be noticed: Lipenius, *Bibliotheca Realis Theologica*, 2 vols. folio (Francofurti, 1685); *Bibliotheca Philosophica*, 1682; *Bibliotheca Medica*, 1679; *Bibliotheca Juridica*, 1672—a new ed. of the last of these was pub. at Leipsic, 1757, and supplements have been added successively by Scott, Senkenberg, and Madihn—Marvin's *Legal Bibliography*, 8vo (Philadelphia, 1847); Orme's *Bibliotheca Biblica*, 8vo (Edin. 1824); Fürst's *Bibliotheca Judaica*, 8vo (Leip. 1849-51); Vater, *Litteratur der Grammatiken, Lexica und Wörtersammlungen aller Sprachen der Erde*, 2te Ausg. von B. Jülg, 8vo (Berlin, 1847); Upcott's *Bibliographical Account of the Principal Works relating to English Topography*, 3 vols. 8vo (Lond. 1818).

Oettinger's *Bibliographie Biographique Universelle*, 8vo (Bruxelles, 1854); *The Literature of Political Economy*, by J. R. M'Culloch, 8vo (Lond. 1845); *Arithmetical Books from the Invention of Printing to the Present Time*, by Augustus de Morgan, 12mo (Lond. 1847); the *Biographia Dramatica*, by Baker, Reed, and Jones, 3 vols. 8vo (1812); the *Bibliotheca Anglo-Poetica* (1815). Note also Van Praet's *Catalogue des Livres Imprimés sur Vélin*, 9 vols. (1828); Peignot's *Dictionnaire des Livres condamnés au Feu* (1806); and Martin's *Bibliographical Catalogue of privately printed Books*.

Petzholdt's *Bibliotheca Bibliographica* (1864) is a bibliography of bibliographies. For modern English literature, the most readily available guides are Sampson Low's *English Catalogue* of books from 1835 onwards; Whitaker's *Reference Catalogue of Current Literature*; the *American Catalogue*; with the lists in the *Bookseller* (Brit.) and the *Publisher's Weekly* (Amer.), and similar issues.

BIBLIOMANCY, *bib'li-o-măn-sĭ* [Gr. *ta biblia*, the Bible, and *manteia*, divination]: a mode of divination much practiced during many ages, by opening the Bible, and observing the first passage which occurred, or by entering a place of worship and taking notice of the first words of the Bible heard after entering it. The application was often very fanciful, and depended rather upon the mere sound of the words than upon their proper signification, or the scope of the passage. Prayer and fasting were sometimes used as a preparation for a mode of consulting the divine oracles, than which nothing could be more contrary to their purpose and spirit, and which was in harmony only with the notions and practices of heathenism. B. was prohibited, under pain of excommunication, by the Council of Vannes, 465, and by the Councils of Agde and Orleans in the next c. It continued, however, to prevail for many centuries thereafter, and is said to have been introduced into England at the Norman Conquest. It was essentially the same as the *Sortes Virgilianæ*, the only difference being in the book employed.

BIBLIOMANIA, *bib'li-o-mā'ni-a*: the passion for rare and curious books, extensively manifested during the last century. While the ordinary collector is satisfied with the possession of works which are valuable either on account of their established reputation, or as assisting him in his literary or professional pursuits, the bibliomaniac is actuated by other motives. With him utility is of secondary importance, rarity being the first and great requisite. Thus even a common book becomes valuable in his eyes, if it be one of a few copies thrown off on vellum or on large paper, or if bound by Derome, Bozerian, Lewis, or Payne; and for the same reason, he sometimes prefers an inferior to a better article. The fac-simile reprint of the Giunta edition of Boccaccio's *Decameron* (Florence, 1527) fetches hardly as many shillings as the original does pounds, yet the great distinguishing difference between them is, that the former is the handsomer and more correct of the two.

The formation of complete sets of such books as the Elzevir editions (see ELZEVIR), or of the works of a single author, provided they be scarce, is a favorite pursuit with many. The editions of the classics most prized by collectors are those of the Elzevirs and of the Foulises (q.v.). The original editions of Defoe's numerous productions are eagerly sought for at present.

B. reached a hitherto unknown height at the sale of the library of the Duke of Roxburghe, 1812. Among the treasures which that library contained, was the only perfect copy, known to exist, of the first, or at least the first dated, edition of Boccaccio's *Decameron* (Venice, Christ. Valdarfer, 1471). After a spirited competition with Lord Spencer, this volume was purchased by the Marquis of Blandford for the sum of £2,260. When the collection of the marquis came under the hammer in 1819, Lord Spencer secured this precious tome at the more moderate cost of £918, 15s. In 1885, Mr. Quaritch, bookseller, gave £3,900 for a Mazarin Bible, and £4,950 for the *Psalmorum Codex* printed by Fust and Schöffer in 1459. The same purchaser gave £1,950 at the Osterley Park sale for *La Mort d'Arthur*, printed by Caxton in 1485.

One of the results of the Roxburghe sale was the establishment of the Roxburghe Club, the object of which was to reprint, for the use of the members only, works hitherto unedited, or of extreme rarity. The example thus set was speedily followed by the Bannatyne and Maitland clubs in Scotland, and others in other parts of the kingdom.

BICAMERAL, a. *bī-kām'ér-al*: consisting of two legislative chambers.

BICANERE, or **BEEKANEER**: see **BIKANIR**.

BICAPSULAR, a. *bī-kāp'sū-lér* [L. *bis*, twice, and *capsular*]: in *bot.*, having two seed-capsules to each flower.

BICARBONATE, n. *bī-kār'bō-nāt* [L. *bis*, twice, and *carbonate*]: a salt having two equivalents of carbonic acid to one equivalent of a base. **BISULPHATE**, n. *bī-sūl'fāt*, constituted as preceding—and many other similar formations in *bī*.

BICARINATE, a. *bī-kār'ī-nāt* [L. *bis*, twice; *cārīna*, the bottom of a ship, the keel]: in *bot.*, two-keeled.

BICAVITARY, a. *bī-kāv'ī-tēr-ī* [L. *bis*, twice; *cavītātēm*, hollowness—from *cavus*, hollow]: having two cavities.

BICE, n. *bīs* [OF. *bis*, gray; *bes*, in composition, being often employed to signify perversion or inferiority]: an inferior blue; two pigments of a blue and green color respectively, known to artists from the earliest times—Blue B. as *mountain blue*, *ongaro*, *azzurro di terra*, etc.; and green B. as *chrysocolla*, *Hungarian green*, *verde de Miniera*, *verde de Spagna*, *verdetto*, etc. Green B. is now usually called *malachite green* and *mountain green*. Both are native carbonates of copper, but are also prepared artificially. In its native state, however, B. is more durable, and in the case of mountain green especially, much more brilliant. Artificial blue B. is known as

BICEPS—BICKER.

Hambro' blue, mineral blue, etc.; artificial green B., as mountain green, Paul Veronese green, and emerald green.

BICEPS, n. *bī'sēps* [L. *biceps*—from *bis*, twice; *caput*, the head]: double-headed; in *anat.*, applied to certain muscles that divide into two portions—especially to the great flexor of the fore-arm, which gives a full appearance to the front of the arm. Above, it consists of two portions or heads—whence its name—one being attached to the coracoid process of the scapula, the other to the margin of the depression on that bone which lodges the head of the humerus. The former is the short, the latter, the long head of the biceps. They unite to form a fleshy belly, which terminates in a rounded tendon.

The B. tendon is inserted into the tubercle of the radius (see ARM). Before passing to this insertion, it gives off an expansion, which separates the median basilic vein from the brachial artery in the situation generally selected for venesection. The action of the B. is rapidly to bend the forearm, and also to supinate the hand. **BICIPITAL**, a. *bī-sīp'ī-tāl*, or **BICIPITOUS**, a. *bī-sīp'ī-tūs*, having two heads; or **BICEPHALOUS**, a. *bī-sēf-ā-lūs* [L. *bis*, twice: Gr. *keph'* *āl'*, the head]: double-headed.

BICÊTRE, *bē-sāt'r*: originally the name of a very old castle, on a little eminence near Paris, commanding one of the finest views of the city, the Seine, and the environs. In 1632 it was destroyed, because it had become a hiding-place of thieves. Afterward, it was rebuilt by Louis XIII., and made a hospital for old soldiers. When Louis XIV. had built the *Hôtel Royal des Invalides*, the B. was made a civil hospital for septuagenarians. It was for a long time used also as a prison for criminals, mostly those condemned to the galleys, but is now occupied entirely as a hospital for indigent old people and for incurable lunatics. There is a well sunk in the rock to the depth of 183 ft.

BICHAT, *be-shā'*, MARIE FRANÇOIS XAVIER: 1771, Nov. 11—1802, July 22; b. Thoirette, dept. of Ain, France; eminent anatomist and physiologist. He studied chiefly in Paris under Desault, who adopted him as his son, and whose surgical works he edited. In 1797, he began giving lectures on anatomy, with experimental physiology and surgery, and in 1800 was appointed physician in the Hôtel-dieu. Two years later he fell a victim to intense and unremitting labor, before he had completed his thirty-first year. He was the first to simplify anatomy and physiology by reducing the complex structures of the organs to the simple or elementary tissues (q.v.) that enter into them in common. This he has done in his *Anatomie Générale* (2 vols. Par. 1801, often reprinted). In his *Recherches Physiologiques sur la Vie et la Mort* (Par. 1800), he develops another luminous idea—the distinction between the organic and the animal life. His discoveries mark an epoch in biology.

BICKER, n. *bīk'ēr* [Scot.: Dut. *bickeler*, a stone-picker: W. *bicra*, to bicker, to skirmish]: in *Scot.*, a fight between

two parties of boys by throwing stones and using sticks. V. to quarrel; to fight without a set battle; to contend in words. BICK'ERING. imp. BICKERED, pp. *bik'êrd*. BICKERMENT, n. *bik'êr-měnt*, in *OE*, a quarrel.

BICKER, n. *bik'êr* [Ger. *becher*, a cup, a goblet]: in *Scot.*, a bowl or dish made of wood.

BICKERN, n. *bik'êrn* [corrupted from *beak-iron*]: a small anvil, with a tang, which stands in a hole of a work-bench.

BICKERSTAFF, *bik'er-stăf*, ISAAC: b. Ireland, abt. 1735: author of numerous comedies and light musical pieces produced under Garrick's management, which had great popularity. He became page to Lord Chesterfield, who was made lord lieut. of Ireland, 1746. B. afterward became an officer of marines, but was dismissed the service for some discreditable offense. Nothing is certainly known regarding his after-life, nor the time of his death, which seems to have taken place on the continent. His best-known pieces are, *The Maid of the Mill*; *The Padlock*; *He would if he could*; *Love in a Village*; *The Hypocrite*; and *The Captive*.

BICKERSTETH, *bik'er-steth*, EDWARD: 1786, Mar 19—1850, Feb. 24; b. Kirkby Lonsdale, Westmorland, Eng.: clergyman of the Church of England. He commenced life as a post-office clerk; afterward, having served an apprenticeship to a London attorney, established a lucrative solicitor's business in Norwich. Here he soon became so impressed with the importance of religious truth, that he resolved to devote himself to the ministry. Being admitted to orders, he was sent by the Church Missionary Soc. to reorganize their mission stations in Africa, and, on his return, was appointed sec. to the society, in which office he was noted for energy and devotion. In 1830, he resigned on acceptance of the rectory of Watton, Hertfordshire. He was active in almost every work for the spread of religious truth. B. belonged to what is known as the Evangelical section of the Church of England, and opposed the endowment of Maynooth, and the spread of Tractarianism in his own church. He was one of the founders of the Evangelical Alliance. Of his religious writings—16 vols. (Lond. 1853)—the most popular are, *A Help to the Study of the Scriptures* (written before he was ordained), *The Christian Student*, and *A Treatise on the Lord's Supper*. B. also edited *The Christian Family Library*, 40 vols.

B.'sson, EDWARD HENRY B., D.D., b. 1825, was appointed Bp. of Exeter; wrote *Yesterday, To-day, and Forever*; etc.

BICKMORE, ALBERT SMITH: an Amer. naturalist; b. 1839; studied under Agassiz. He traveled in the Malay Archipelago and in Eastern Asia in 1865-69; became Prof. of Natural History at Madison (now Colgate) University 1870; and was made prof. in charge of the Department of Public Instruction at the American Museum of Natural History, New York city, 1885. His publications include *Travels in the East Archipelago*, *The Ainos or Hairy Men of Jesso*, *Sketch of a Journey from Canton to Hankow*, etc.

BICUSPID—BICYCLE.

BICUSPID, a. *bī-kūs'pīd* [L. *bis*, twice; *cuspidem*, the point of a spear]: in *anat.*, applied to teeth that have two tubercles; in *man* the two premolars on each side; in *bot.*, leaves that end in two points; two-pronged.

BICYCLE, n. *bī'sīk-l* [L. *bis*, twice: F. *cycle*; Gr. *kulos*, a circle]: light two-wheeled vehicle, a form of velocipede. As the wheels are placed in line, one behind the other, the machine acquires and retains its stability in the erect position only in motion. The B. is now essentially what it was when Pierre Lallement 1866 took out the U. S. patent for it, i.e., two wheels of nearly equal size, one behind the other, the motive power of which is transmitted to pedals on the axle by the alternate pressure of the feet of the mounted rider. Its intermediate transformations have been numberless; but the 'safety' B. of to-day seems likely to be its permanent form. On the 'safety' the rider is placed between the two wheels astride of a rigid, strong, diamond-shaped frame connecting the two similar-sized wheels, and the power of his feet pre-sure on the alternate pedals is transmitted to the hind wheel by gears and a chain linked from the axle of the cranks to and around the axle of the hind (the driving) wheel. This frame distributes the pressure of the rider's weight and divides the functions of driving and steering betwixt the two wheels. In Lallement's the pressure was mainly on the axle of the front wheel, which was also both the driver and steerer. The diamond frame and the adoption of tangent wheel-spokes, ball-bearings at the axles, tough steel, and the covering of the wheels with India rubber inflated with air, as in the pneumatic tires, are the main improvements effected. road-riding bicycles are 17 to 25 lbs. in weight.

Wood is often substituted for steel in the construction of the wheel-rims and handle-bars: it reduces the weight. Chainless bicycles, in which two pairs of bevel gears are used instead of the chain, are said to have proved their superiority over the chain-gearred B. in a test, in which a wheel was run 39,000 miles without adjustment or appreciable wear. Dynamometer tests show that the bevel gears run with less friction than chain gears. These wheels have been put on the market and proven quite popular.

Within recent years great advances have been made in the manufacture of the B. in the United States, and it has been estimated that in 1896 no less than \$60,000,000 was absorbed by this industry.

Racing records show that in competition 1 mile was ridden 1 m. 20 s., 10 miles in 13 m. 27½ s., and 20 miles in 27 m. 18 s., but the fastest time for one mile, 57¼ s., was ridden by Chas. Murphy (1899) on a board path between the tracks of the Long Island Railroad, paced by a railroad train, and protected by a hooded wind-shield on the last car. At Providence, R. I., 1902, Sept. 3. A. Champion rode 25 miles in 34 m. 33 s.; and at Charles River, Boston, Mass., H. W. Elkes rode 41 miles 250 yds. in 1 hour.

The greatest distance covered in 24 hours by a professional rider is 634 miles 774 yards by Walters, at

Paris, France, 1899; by an amateur, 339 miles, by E. S. Edwards, 1897, over a square course, from Elizabeth through Springfield to Westfield and Rahway. Chas. Miller holds the record (1898) for six days, in which he rode 2,192 miles.

The B., as an aid to military evolutions, is in use in the U. S. army, also in many of the European armies and in the Japanese. B. police patrol are in service in most of the large cities.

B. riding, while dangerous in affections of the aortic valves, is often of great service in uncomplicated mitral disease. Of course it must be riding in moderation. Hill climbing and fast riding are peremptorily excluded, as is also riding which causes an approach to breathlessness. The great point for the beginner in such cases is that he should spend adequate time and money in preliminary tuition, and not be in too great a hurry to be 'off on his own account.'

No less an authority than *The British Medical Journal*, in prescribing the use of the B. by women, says: 'The prescription of a bicycle, and the recommendation to use it wisely and well, works like a charm in all cases of indisposition arising from biliousness and in all the symptomatic ailments which arise from too much "acid" in the system. Bicycling sometimes has the effect of thinning the obese and fattening the thin; this may partly be explained by Murchison's observations that excessive leanness, as well as excessive corpulence, is often caused by inaction of the liver, and the stimulus of regular exercise, setting the functions of that organ right, causes the disappearance of what was only a symptom.'

In cases of breakdown of the nervous system from overwork and anxiety, cycling will be found a valuable adjunct to the rest necessary for recovery. In the anemia of young girls, steel in the form of the wheel is even more effectual than as "drops," and the action of the flat muscles of the abdominal walls on the subadjacent organs being much increased by the movements necessary to retain the balance and drive the machine, has a marked effect. Many sufferers from sick headache, neuralgia, and hysteria, both male and female, have reaped much benefit from regulated B.-riding, and many cases of so-called palpitation has been cured. Insomnia has frequently been found to yield to the proper use of the B. when every other soporific had been defied, and many cases of persistent nocturnal cramp have been relieved. It is necessary, however, again to warn every one who is not an experienced rider against the abuse of this fascinating exercise. See CYCLING: WHEELMEN'S ASSOCIATIONS. TRICYCLE, *n.* *trī'sik-l* [*tris*, three, and *cycle*]: a vehicle somewhat resembling the bicycle, but having three wheels, variously arranged, and propelled in the same way: it holds one or two persons.

BID, *v.* *bīd* [AS. *beodan*; Ger. *bieten*, to offer; Dut. *bieden*, to put forth]: to tell to do, to command; to request; to offer a price; to wish; to desire; to invite; in *OE.*, to

pray; to offer; to bring forward. *BADE*, pt. *băd*. *BIDDEN*, or *BID*, pp. *bĭd'n*. *BIDDING*, imp. *bĭd'dĭng*: N. an invitation, an order. *BID'DER*, n. one who offers a price. *BID*, n. *bĭd*, an offer at an auction. *BIDABLE*, a. *bĭd'ă-bl*, that may be bidden; obedient; submissive. *BID THE BANNS*, to bring forward to public notice the purpose of a marriage. *BID BEADS* [AS. *bede*, a prayer]: to mark or distinguish each bead by a prayer; to pray prayers. *BID FAIR*, to offer or show good promise of success. *BID WELCOME*, to offer welcome. *BID DEFIANCE*, to offer defiance. *Note*.—*BID* [AS. *biddan*; Dut. *biddēn*, to pray]: to pray, as in the reduplication *bidding a prayer*, that is 'praying a prayer'; and *BID* [AS. *beodan*; Goth. *biudan*, to command]: to command, are really two distinct words. Their meanings, however, have become so intermingled that it has been judged better to allow them to stand as one entry: see *BIDDING PRAYER*.—*SYN.* of 'bid, v.': to call; invite; summon; request; offer; propose; proclaim; direct; enjoin; command.

BIDASSOA, *be-dās-so'ă*: river which, rising in Spain, forms the boundary between that country and France, and falls into the Bay of Biscay at Fuenterrabia. The treaty of the Pyrenees was concluded on an island in its mouth, 1659. The B. was the scene of several conflicts during the Spanish campaign. In 1793, the Spanish crossed the river, and defeated the French in three successive encounters. In July of the following year, the French captured the intrenched camp of the Spaniards. In 1813, Aug., the French under Soult were defeated at San Marcial, on the B., by the allies; and in Oct. of the same year, Wellington surprised and drove the French from their strongly fortified positions on its n. side.

BIDDEFORD, *bĭd'de-ford*: city of York co., Me.; on the s. side of the Saco river, by which it is separated from the town of Saco. It is 6 m. from the sea, and 15 m. s.w. of Portland. Two parallel railroads pass through the city connecting it with Boston and Portland. Its inhabitants are engaged chiefly in trade and manufactures of cotton and woolen goods. Principal exports are lumber and cotton goods. A fall of 42 ft. in the river affords inexhaustible water-power. The city has 10 or 12 churches, 4 banks, several newspapers, and large saw-mills. The fine beach near the mouth of the river is a pleasant summer resort. Pop. (1880) 12,652; (1890) 14,418; (1900) 16,145.

BIDDING PRAYER: a form of exhortation, always concluding with the Lord's Prayer, enjoined by the 55th canon of the Anglican Church, 1603, to be used before all sermons and homilies. Except in cathedrals and the university churches, it is now seldom used. The term 'B.' is from the Saxon 'Bede,' signifying a prayer. The form is of extreme antiquity, and a similar one is in the Apostolical Constitutions (q.v.), the original of which was probably that used in the Church of Antioch. It was anciently used for the communicants or believers after the dismissal of the catechumens, and was pronounced by the deacon,

each petition beginning with the words: 'Let us pray for —,' and the people responding at the end of each with 'Kyrie Eleison,' or some such words. There is another very ancient example in the Ambrosian Liturgy; and St. Chrysostom alludes to such a form in one of his sermons. It must have been, and even now in its abridged shape still is, very impressive, allowing each individual to supply from his own thoughts special cases of necessity under the different heads. There is some resemblance between these Bidding Prayers and the Litany, and prayer for the church militant, now used in the Anglican Church.

BIDDLE, *bĭd' dl*, CLEMENT: military officer: 1740, May 10—1814, July 14; b. Philadelphia. He was a member of the Society of Friends; nevertheless he led a company of Quakers against an attack on Philadelphia by a band of outlaws called 'Paxton boys.' In 1775 he helped form a company of Quaker volunteers, and was present at important battles in Penn. and N. J. After the revolution he was politically prominent, was appointed U. S. marshal of Penn. by Washington 1787, and was attached to the expedition against the Whisky Insurrection.—His son CLEMENT CORNELL B. (milit. officer: 1784, Oct. 24—1855, Aug. 21), served in the war of 1812 as capt. and col., and afterward became an authority in political economy, and a prominent advocate of free trade.

BID'DLE, JAMES: naval officer: 1783, Feb. 28—1848 Oct. 1; b. Philadelphia. He became a midshipman 1800, and was on the frigate *Philadelphia* when she ran ashore at Tripoli 1803. After release from the captivity which followed, he continued in the naval service; 1812 was on the sloop-of-war *Wasp* when she captured the *Frolic*, and took charge of the prize, but was captured by the British 74, *Poictiers*. He was exchanged, promoted to master commandant 1813, and commanded the *Hornet* in her successful engagement with the British brig *Penguin* 1815, Mar. 23. He was promoted to post-capt., and congress voted him a gold medal. B. acted for the United States in the Oregon boundary question under the treaty with Great Britain 1818, and negotiated a commercial treaty with Turkey 1826. He was gov. of the naval asylum at Philadelphia 1838–42, flag officer of the E. India squadron 1845, when he negotiated the first treaty with China; and commanded on the Pacific coast during the Mexican war.

BIDDLE, *bĭd' dl*, JOHN: 1615–62, Sep.; b. Wotton-under-Edge, Gloucestershire: founder of English Unitarianism. In 1632, he entered Magdalen College, Oxford, where he took his degree of M.A. In 1641, he was elected master of the free school in the town of Gloucester, where he did good service; but having embraced certain opinions—printed for private circulation—in regard to the personality of the Holy Spirit, at variance with those held by the majority of Christians, he was thrown into jail, 1645, Dec. Summoned to trial before the parliament at Westminster, on account of his heresy, he was condemned to imprisonment for five years. The famous Westminster Assembly

BIDDLE.

of Divines undertook to 'settle' B.'s case, but unfortunately their arguments—as is usual in disputation—had the effect only of strengthening his previous convictions. In 1648, while still in prison, he published a *Confession of Faith concerning the Holy Trinity*, etc., which was followed by another tract containing the opinions of the Church Fathers on the same question. In consequence of this attempt to combat the orthodox doctrine, the Westminster Divines called upon the parliament to pass an act declaring the denial of the Trinity a crime punishable by death. The *army*, however, strange to say, proved on this occasion less cruel than the *church*, for it manifested such strong opposition that the act remained a dead letter; and under the liberal rule of Cromwell, B. was released. He now commenced to gather a congregation of those whom he had converted to his opinions—namely, that there was but one person, as there was but one nature, in the Godhead. The members were first called Bidellians, then Socinians, and finally assumed for themselves the name of Unitarians. Twice, however, after this, during the Commonwealth, B. suffered severely for his creed, and even the iron-willed Protector himself, in order to save his life, was compelled to banish him to one of the Scilly Isles. Three years of imprisonment having elapsed, he was permitted to return, and continued to preach in London till after the restoration; but 1662, June, he was again apprehended and fined £100; and being unable to pay, was committed to jail, where he died in the following Sep. His character was estimable.

BIDDLE, NICHOLAS: naval officer: 1750, Sep. 10—1778, Mar. 7; b. Philadelphia. He ran away from home at the age of 13, went to sea, was wrecked, and lived two months on a desert island with two companions. He was appointed midshipman in the Brit. navy 1770, and was on the same ship with Nelson 1773. When the revolution broke out, B. returned home, and was one of the original 19 naval officers appointed by congress 1775, Dec. 22. He was assigned first to the brig of war *Andrea Doria*; and 1776, June 6, congress appointed B. to command the 32-gun frigate *Randolph*, the first U. S. frigate ever launched, and on his first cruise he captured 4 prizes. After bringing them in, he sailed from Charleston, in command of a small squadron, of which the *Randolph* was flagship. In an engagement 1777, Mar. 7, with the Brit. 64-gun ship *Yarmouth*, the *Randolph* blew up, and B., with the crew of 310 men, perished.

BIDDLE, NICHOLAS: financier: 1786, Jan. 8—1844, Feb. 27; b. Philadelphia. He entered the Univ. of Pennsylvania 1799, and afterward Princeton Coll., where he graduated 1801. He studied law; and was sec. to John Armstrong, U. S. minister to France, 1804, and afterward sec. to James Monroe, U. S. minister to England, and on his return 1807, began to practice law. B. was elected to the Penn. legislature 1810, and to the senate 1812. In the legislature he was the champion of popular education, and out of his strenuous efforts in that direction eventually grew the Penn. school system. In 1815 his statesman-like abilities were shown in his course concerning the Hartford convention.

BIDDY—BIDPAI.

B. advocated renewing the charter of the U. S. Bank, and his speech on the subject in the legislature was highly commended by Chief-Justice Marshall. He was appointed govt. director of the U. S. Bank 1819; and later its pres., holding that position, which gave him public repute as the leading financier of the country, at the time of the removal of the govt. deposits by Pres. Jackson, 1833. He resigned the office 1839. B. was prominent in the arrangements for establishing Girard Coll. under the will of Stephen Girard, and was generally esteemed as an active and public-spirited citizen. He edited the *Port-Folio* (1806–23); and prepared for publication the account (2 vols.) of Lewis and Clarke's explorations of the Columbia river; indeed it has been credibly stated that the work was B.'s direct compilation.

BIDDY, n. *bid'dĩ* [F. *bidet*, a little horse]: a domestic fowl, especially a chicken; a servant-girl (a corruption of Bridget).

BIDE, v. *bīd* [AS. *bidan*; Dut. *beiden*; Icel. *bitha*, to wait, to remain]: to suffer; to endure; to live; to remain in a place; to continue in a state; to wait—as to bide one's time. **BIDING**, imp. *bī'ding*, dwelling; remaining. **BIDE BY IT**, in *OE.*, to continue in the same state; to adhere to it.

BIDEFORD, *bid'e-ford*: seaport town of Devonshire, Eng., on both sides of the Torridge, near its confluence with the estuary of the Taw, 30 m. n.w. of Exeter. A bridge of 24 arches, and 677 ft. long, unites the two divisions of B., which has manufactures of ropes, sails, earthenware, and leather. These it exports, together with oak-bark, corn, flour, linens, woolens, iron, and naval stores. In 1880, 1,052 vessels, of 44,291 tons, entered, and 1,064 vessels, of 45,807 tons, cleared the port. Vessels of 500 tons can go up to the quay. Four m. away, on the coast, is the new and popular health resort, *Westward Ho*, named after Kingsley's novel. Pop. (1881) 6,512; (1891) 7,908.

BIDELLUS, n. *bī-dēl'ūs*: see **BEDELLUS**.

BIDENS, n. *bī'denz* [L. *bī*, two; *dens*, a tooth]: genus of plants, ord. *Compositæ*. Our species include Bur Mari-gold, Beggar-ticks, etc.; the seed-hooks catch on dress.

BIDENTAL, a. *bī-dēn'tāl* [L. *bis*, twice; *dentem*, a tooth]: having two teeth. **BIDENTATE**, a. *bī'dēn-tāt*, in *bot.*, applied to leaves that have their marginal incisions or teeth edged by smaller teeth.

BIDERY, n. *bī'dēr-ī* [from *Bidar* in Hyderabad in the Deccan]: an Indian alloy of copper, lead, and tin, of which many beautiful articles are manufactured.

BIDET, n. *bīd'ēt* [F. *bidet*; It. *bidetto*, a nag, a pony]: a small horse; an article of bedroom furniture.

BIDPAI, *bid'pī*, or **PILPAI**, *pil'pī*: reputed author of a collection of fables and stories widely current in Asia and Europe for nearly 2,000 years, passing as a compendium of practical wisdom. Scarcely any book except the Bible has been translated into so many languages; and its history is part of the history of human development. The re-

searches of Colebrooke, Wilson, Sylvestre de Sacy, and Loiseleur des Longchamps (*Essai sur les Fables Indiennes*, 1838), have successfully traced the origin of the collection, its spread, and the alterations that it has undergone among different nations. The ultimate source is the old Indian collection in Sanskrit, with the title *Panchatantra* (q.v.), i.e., 'Five Sections' (edited by Kosegarten, Bonn, 1848). An analytical account of the Sanskrit *Panchatantra*, by H. H. Wilson—who determines the date of its production to be subsequent to A.D. 5th c.—is printed in the *Transactions* of the Royal Asiatic Soc. vol. i.; but an abridgment of it, called the *Hitopadesa* (q.v.) is better known than the original. A critical edition of the *Hitopadesa* has been published by A. W. von Schlegel and Lassen (Bonn, 1829), and translations have been made into English by Wilkins and Jones, and into German by M. Müller (Leip. 1844).

Under the Persian king, Nushirvan (531–570), the *Panchatantra* was translated into the Pehlvi tongue by his physician Barsuyeh, under the title of *Kalilah and Dimnah* (from two jackals that take a prominent part in the first fable). This Pehlvi version has perished with all the profane literature of ancient Persia; but under the Caliph Almansur (754–775), it was translated into Arabic by Abdallah ibn-Almokaffa (pub. by De Sacy, Par. 1816). From Almokaffa's Arabic translation—in the introduction to which the author of the collection is called Bidpai, the chief of Indian philosophers—have flowed all the other translations and paraphrases of the East and West. Several Arabic poets worked it up into complete poems; and in the new Persian literature a great variety of versions and paraphrases, some in verse, some in prose, were made. From the Persian of Vaez (about the end of the 15th c.), the work was translated into Turkish about 1540 by Ali Chelebi, under the title of *Homayun-nāmeḥ*, the Imperial Book. There are translations also into the Malay, Mongol, and Afghan languages.

Toward the end of the 11th c., a translation had appeared, from the Arabic of Almokaffa, into Greek, by Simcon Sethus; and later, a Hebrew translation by Rabbi Joel, which John of Capua, a converted Jew, in the last half of the 13th c., retranslated into Latin with the title of *Directorium Humanæ Vitæ* (published first at Augs. 1480, and repeatedly since). A version from this was made into German by Eberhard I., Duke of Würtemberg (d. 1325), published at Ulm, 1483. Under Alfonso X. of Castile (1252–84), Almokaffa's work was translated into Castilian, and from that into Latin by Raymond of Veziers, a learned physician. There are translations in most European languages. In 1884, Prof. Wright published an edition of the Syriac text of *Kalilah and Dimnah*; and in 1885, Mr. Keith-Falconer gave an excellent translation from the Syriac, with notes, bibliography, and other scholarly apparatus, under the title of *Kalilah and Dimnah, or the Fables of Bidpai*.

BIEL: see BIENNE.

BIELA'S COMET—BIELO-OZERO.

BIELA'S COMET, *bē'lāz kōm'ēt*: one of the comets of short period ($6\frac{1}{2}$ years), first seen at Johannesburg, 1826, Feb. 27, by Wilhelm von Biela, Austrian officer; and 10 days later at Marseille by Gambert. On its return in 1833 it was in two parts, presenting the appearance of two comets about 157,000 m. apart. In 1852, its parts were 1,250,000 m. apart; and since that time it has not been seen. It has been suggested that its parts have separated and become material for meteoric showers. Biela (1782–1856) after whom the comet was named, was born in Roslau on the Elbe (Prussia), and entered first upon a military career. After serving for some time in the Austrian army, he withdrew from the service, and gave his leisure to the fine arts and astronomy.

BIELD, n. *bēld*: see **BEELD**.

BIELEFELD, *bē'le-fēit*: busy town of Westphalia, Prussia, picturesquely situated on the Lutter or Lutterbach, at the foot of the Sparrenberg Mountain, about 26 m. s.w. of Minden. The broad ditch which formerly surrounded B. is now converted into pleasant walks. The old walls of the town have been put to a similar use. The castle of Sparrenberg, erected 1545 on the site of an old Guelphic fortress, and which now serves as a prison, is near. B., which is the centre of the Westphalian linen-trade, the extensive bleaching-grounds, manufactures of woolenae read, soap, leather, etc., and its meerschaum pipes are celebrated. Pop. (1890) 39,942; (1900) 63,046.

BIELEV, *be-ā-lēv'*: ancient town of European Russia, in the gov. of Tula; on the left bank of the Oka; lat. $53^{\circ} 45'$ n., long. $36^{\circ} 5'$ e. It has a large trade, and manufactures of soap, hardware, leather, etc. Pop. 9,171.

BIELITZ, *bē'lits*: town of Austrian Silesia, on the left bank of the river Biala, about 18 m. n.e. of Teschen. A bridge over the river connects it with the town of Biala, in Galicia. It has dye-works and print-fields, and a large trade in woolens and kerseymers with Russia, Poland, Hungary, and Italy. B. belongs to the Princes Sulkowsky, whose castle here is now converted into public offices. Pop. (1880) 13,060; (1890) 14,499.

BIELLA, *bi-ēl'lā*: town of n. Italy, province of Novara, about 38 m. n.e. of Turin, with which it is connected by railway. It is pleasantly situated on the Cervo, an affluent of the Sesia, and has manufactures of woolens, hats, paper, etc. Pop. 11,662.

BIELO-OZERO, *be-ā'lo-o-zā'ro* (the White Lake): lake in the gov. of Novgorod, Russia; lat. $60^{\circ} 10'$ n., long. $37^{\circ} 30'$ e. It is elliptical in shape, its length about 25 m., and its breadth 20. Its bottom is composed of white clay, which, during stormy weather, gives to the water a milky appearance; hence, doubtless, the name White Lake. B. is fed by numerous small streams, is deep, and abounds with fish. Its surplus waters are conveyed by the Sheksna river into the Volga. Canals unite it with the Onega, Sukona, and Dwina.

BIELOPOL—BIENNIAL.

BIELO-OZERSK, an old wooden town on the s. shore of the lake, formerly cap. of an ancient principality of the same name, has a trade in cattle, corn, and pitch, and manufactures of candles. Pop. about 5,000.

BIELOPOL, *be-ā-lō'pol*: town of Russia, govt. of Khar'kov, from which it is 106 m. n.w. It has considerable trade and extensive distilleries. Pop. about 15,000.

BIELSHÖH'LE: singular cavern in one of the Harz Mountains, called Bielstein, on the right bank of the Bode, in the duchy of Brunswick, Germany. It was discovered, 1768. The entrance to it is more than 100 ft. above the bed of the stream. The cavern is divided into eleven main compartments, and contains much of that curiously freakish work which nature delights to execute in stalactites in seeming imitation of the inventions of human art, as in the eighth division, where a formation like the framework of an organ has been fashioned out of the slow drip of ages. In the ninth, there is also a picture of a sea, arrested in its motion, its waves silent, but in act to roll.

BIĖLSK, *be-ĕlsk'*: town of Russia, govt. of Grodno; in a very fertile district, watered by the Narev and Nurzek. It was formerly capital of a Polish palatinate, is well built, and has a fine custom-house. Pop 10,000.

BIENNE, *be'en*, or **BIEL**: town of Switzerland, canton of Bern, 17 m. n.w. of the city of Bern; beautifully situated at the foot of the vine-clad Jura, at the mouth of the valley of the Suze, and at the n. extremity of the lake of Biemme. It is surrounded by old walls, and approached by shady avenues. The people are engaged in the manufacture of watches, leather, cotton, etc. B. is a place of great antiquity. It belonged to the Bishop of Bâle, or Basel; but as early as 1352, it entered into an alliance with Bern, for the protection of its liberties, and for this display of independence was burned by its ecclesiastical ruler. The Reformation, however, so weakened the clerical power that in the beginning of the 17th c. it had become merely nominal; and B. was essentially a free and independent city until 1798, when it was annexed to France. In 1815, it was united to Bern. Pop. (1901) 22,280.

BIENNE, LAKE OF: lake extending s.w. from the town of Biemme along the foot of the Jura Mountains, until within 3 m. of Lake Neuchâtel; length about 10 m.; greatest breadth 3. It is 1,419 ft. above the level of the sea, 8 ft. lower than Lake Neuchâtel, whose surplus waters it receives at its s. extremity by the Thiel, by which river it again discharges its own. Its greatest depth is 280 ft. Toward its s. extremity is the island of St. Pierre, crowned with a grove of fine old oaks, to which Rousseau retired for two months after his proscription at Paris in 1765.

BIENNIAL, a. *bī-ĕn'nĭ-ăl* [*L. biennālis*, for two years—from *bis*, twice; *annus*, a year]: continuing or lasting throughout two years—applied to plants that do not bear flowers and seed till the second year, and then die; happening once in two years: N. a plant that stands two years. **BIEN'NIALY**, ad. *-lĭ*.

BIENNIALS—BIENVILLE.

BIENNIALS, *bī-en'ni-ălz*, or BIENNIAL PLANTS: plants which do not flower in the first season of their growth, but flower and bear fruit in the second season, and then die. Many of our cultivated plants are B., as the carrot, turnip, parsnip, parsley, celery, etc., and many of the most esteemed flowers of our gardens, as stock, wallflower, etc. But plants which in ordinary circumstances are B. often become annuals (q.v.), when early sowing, warm weather, or other causes promote the earlier development of a flowering stem, as is continually exemplified in all the kinds already named. If, on the other hand, the flowering of the plant is prevented—or, in many cases, if merely prevented from ripening its seed—it will continue to live much longer: the same bed of parsley, if regularly cut over, will remain productive for a number of years.

BIENVILLE, *bē-äng-vêl'*, JEAN BAPTISTE, Sieur DE: 1680, Feb. 23—1765; b. Montreal: adventurer and civil administrator. He was one of 11 sons of Charles Lemoyne, Baron of Longueuil, and 3 of his brothers, Iberville, Sérigny, and Châteauguay, were, like himself, prominent figures in the early history of Louisiana. While a boy, he accompanied his elder brother, Iberville, on several voyages, and in a naval action off the New England coast was severely wounded. He was with Iberville when the first settlement was made at the mouth of the Mississippi, 1699. Iberville then went back to France, leaving Sauvolle in command, and on the death of Sauvolle, 1701, B. succeeded to the direction of the colony, and transferred the capital to Mobile. He was dismissed from office 1707 on charge of misconduct, but was restored to favor, and appointed lieut.gov. 1713. A new company of colonists having been sent out, B. was appointed gov., and founded the city of New Orleans 1718. He captured Pensacola from the Spaniards in the same year, and placed his bro. Châteauguay in command. He made New Orleans the seat of govt. 1723, but was removed from office under charges 1726. Again he was sent to La. as gov. 1733. In consequence of an unsuccessful expedition against the Chickasaws, he was again deposed. Before leaving La., he promulgated a code of laws which remained in force until after La. came into the possession of the United States. By this code, Jews were excluded from the territory, the Rom. Cath. religion alone was tolerated, and the condition of slaves was regulated.—B. died in France.

BIER—BIFARIOUS.

BIER, n. *bēr* [AS. *baer*; F. *bière*, a bier; Ger. *bära*, a litter; Gael. *bara*, a barrow]: a frame of wood, or a carriage, on which the dead are borne to the grave.

BIERSTADT, *bēr'stāt*, ALBERT: painter: b. Düsseldorf, Germany, 1830, Jan. 7. He accompanied his parents to Salem, Mass., 1831; began painting in oil 1851; studied painting in Düsseldorf and Rome 1853-57; accompanied Gen. Lander's expedition to Colo. and Cal. 1858; elected member of the National Acad. of Design 1860; received the diploma and cross of the Legion of Honor 1867, and crosses of St. Stanislaus 1869 and 70; elected member of the Acad. of Fine Arts in St. Petersburg 1871; and has received medals of honor from Austria, Bavaria, Belgium, and Germany. His paintings include *Laramie Peak* (1861); *Lander's Peak* (1863); *North Fork of the Platte* (1864); *Down the Yosemite* (1865); *El Capitan on Merced River* (1866); *Storm on Mt. Rosalie* (1866); *Valley of the Yosemite* (1866); *Settlement of California* and *Discovery of the Hudson River* (both in the national capitol); *Pool on Mt. Whitney* (1870); *Great Trees of California* (1874); *Valley of Kern River, California* (1875); *Estes Park, Colorado, Mountain Lake* and *Mt. Corcoran in the Sierra Nevada* (1878); *Geysers* (1883); *Storm on the Mitterhorn* (1884), etc. He died 1902, Feb. 18.

BIERVLIET, *bēr-vlēt'*: village of the Netherlands, province of Zeeland, 13 m. e.n.e. of Sluis; noticeable as the birthplace of William Beukelzoon (q.v.), who in 1386 invented the method of curing herrings. In 1377, B. was detached from the mainland by an inundation, and remains insular.

BIES-BOSCH, *bēs-bosk'*: marshy sheet of water of the Netherlands, between the provinces N. Brabant and S. Holland, formed in 1421, Nov., by an inundation which destroyed 72 villages and 100,000 people. It forms that part of the estuary of the Maas called Holland's Diep. It is interspersed with several islands.

BIESTINGS, n. plu. *bēst'ingz* [AS. *bysting*; Dut. *biest*, biestings; Goth. *beist*, leaven (see **BEESTINGS**)]: the first milk given by a cow after calving.

BIÈVRES, *be-āv'r'*: village of France (Seine-et-Oise), 5 m. s.e. of Versailles, on a woody slope at the base of which the Bièvre, a tributary of the Seine, has its source. It has numerous villas and the castle of Bel-Air.

BIEZ, *be-ā'*, OUDARD DU: d. 1553 or 1554: French marshal, one of the most illustrious captains of his time. After the death of Bayard (1524), François I. gave B. half of the knight's troops. In 1542, he was made marshal of France. Having met with some reverses, his enemies succeeded, 1549, in having sentence of death pronounced against him; but he was pardoned, and in 1575 his honor was restored.

BIFACIAL, a. *bī-fā'shal* [L. *bis*, twice; *fāciēs*, the face]: having two like faces.

BIFARIOUS, a. *bī-fā'rī-ūs* [L. *bīfāriūs*, twofold, double—from *fari*, to speak, to say]: in bot. placed in two rows, one on each side of an axis.

BIFASCIATE, *bī-fāz'ī-āt* [L. *bis*, twice, and *fasciatus*, made into a bundle, banded]: in *zoology*, having two bands of color, transverse or encircling.

BIFEROUS, a. *bīf'ēr-ūs* [L. *bis*, twice; *fēro*, I carry]: bearing fruit twice a-year.

BIFFIN, n. *bīf'fin* [supposed corruption of *beefin*, from its resemblance to raw beef]: an apple so called, dried in an oven and flattened for keeping. See **APPLE**.

BIFID, a. *bīf'id* [L. *bis*, twice; *fidī*, I cleft or split]: cleft in two; opening with a cleft, but not deeply divided. also **BIFIDATE**, a. *bīf'ī-dāt*, cleft in two. **BIFIDITY**, n. *bī-fid'ī-tī*, state or quality of being bifid. **BIFID CIRCLE**, circle cut at the extremities of a diameter by another circle, with relation to which it is said to be *bifid*. **BIFID SUBSTITUTION**, in *math.*, substitution relating to pairs of 8 letters, as elements. The whole 8 are to be discriminated into 2 sets of 4 letters, and every pair whereof both the members belong to the same set of 4 is to be replaced by the other pair of the same set of 4, the rest of the pairs remaining unchanged.

BIFILAR, a. *bīf'ī-lér* or *bī-f'ī'lér*: two-threaded; fitted with two threads: said of instruments in which two threads are employed. **BIFILAR BALANCE**, or simply **BIFILAR**, micrometer for measuring minute distances and angles, which it does by means of two exceedingly fine threads. **BIFILAR MAGNETOMETER**, a magnetometer contrived on the principle of B. suspension. **BIFILAR SUSPENSION**, mode of suspending a body for the purpose of measuring horizontal couples or forces of rotation. The body that the couple to be measured is to turn is suspended by two threads of equal length, attached to it at points equidistant from, and on opposite sides of, its centre of gravity, from two fixed points on one higher level. When the body is turned round a vertical axis through its centre, gravity tends to restore it to its original position; and the moment of this force of restitution can be calculated with precision from the lengths of the two threads, the distances of their attachments, and the weight of the suspended body.

BIFLABELLATE, *bī-fla-bēl' lāt* [L. *bis*, twice, and *flabellatus*, fan-shaped]: in *entom.*, possessing short joints, each having on two opposite sides a very long, rather flattened process, the two processes lying close together, so that the whole organ is somewhat fan-like. The term is used with regard to the antennæ of insects: it expresses an extreme modification of the bipectinate type.

BIFLAGELLATE, a. *bī-fla-jēl' lāt* [L. *bis*, and *flagellatus*, furnished with a whip, or lashes]: having two flagella, or whip-like processes or appendages.

BIFLEX, a. *bīflēks* [L. *bis*, twice; *flexus*, bent, curved]: in the sheep, designating a canal between the digits, so called from the peculiar curve which it takes; also called the 'interdigital canal.'

BIFOCAL—BIGA.

BIFOCAL, *n.* *bī-fō'kal*: having two focuses: see **LENS**.

BIFOLD, *a.* *bī'fōld* [*L. bis*, and *fold*]: double; of two kinds. **BI'FORM**, *a.* *-fawrm* [*L. forma*, shape]: having two forms.

BIFOLIATE, *a.* *bī-fō'li-āt* [*L. bis*, twice; and *foliātus*, leaved]: in *bot.*, applied to compound leaves having two leaflets.

BIFOLLICULAR, *a.* *bī'fōl-lik'ū-lēr* [*L. bis*, twice; *folliculus*, a small bag or sack]: in *bot.*, having a double follicle.

BIFORINE, *n.* *bī'fōr-in* [*L. bifōris*, having two doors—from *bis*, twice; *fōris*, a door]: in *bot.*, an oblong raphidian cell, having an opening at each end. **BIFORATE**, *bī'fōr-āt* [*L. bi*, two, and *fōris*, a door]: having two perforations.

BIFORKED, *a.* *bī'fawrkt* [*L. bi*, double, and *forked*]: having two prongs or forks.

BIFORM, *a.* *bī'fawrm* [*L. bis*, *forma*, form]: having two forms or shapes. **BIFORM'ITY**, *n.* the state of being biform.

BIFRONT, *a.* *bī'frünt* [*L. bifrons*, with two foreheads or fronts]: having two fronts, two faces.

BIFRÖST, *n.* *bī'fröst* [Scandinavian, from *bifa*, to tremble; *röst*, path]: the bridge which, in the mythology of the anc. Scandinavians, connects earth with heaven. The idea of this myth was suggested by the rainbow.

BIFURCATE, *a.* *bī-fēr'kāt*, **BIFUR'CATED**, *a.* *-kā-t'ēd*. or **BIFUR'COUS**, *a.* *-kūs* [*L. bifurcātus*, two-pronged—from *bis*, twice; *furca*, a fork]: forked; separated into two heads or branches. **BI'FURCA'TION**, *n.* *-kā'shūn*, a dividing into two, as the division of the trunk of vessels, or of the stem of a plant.

BIG, *a.* *big* [original spelling *bug*: Icel. *bolga*, a swelling; Dan. *bug*, belly]: large; great in size or bulk; swollen; distended; so full of something as to be ready to burst. **BIG'LY**, *ad.* *-lī*, blusteringly; pompously; conceitedly. **BIG'NESS**, *n.* the quality of being big; largeness.—**SYN.** of 'big': large; great; bulky; arrogant; proud; pregnant; full; inflated; distended

BIG, *v.* *big* [*AS. byggan*; Icel. *byggja*, to build; to inhabit; Ger. *bauen*, to build]: in *OE.* and *Scot.*, to build; to remain. **BIG'GING**, *imp.* **BIGGED**, *pp.* *bigd*. **BIGGIN**, or **BIGGYN**, *n.* *big'in*, a house of a larger and more pretentious size; a building.

BIG, or **BIGG**, *n.* *big* [Dan. *bug*]: winter barley: see **BARLEY**.

BIGA, or **BIGHA**, *bē'gā*: town of Turkey in Asia, on the Bolki, abt. 100 m. s.w. of Constantinople. It was near this place that Alexander gained his first victory over Darius.

BIGA, *bī'ga*: Roman term applied in ancient times to vehicles drawn by two horses abreast; and commonly to the Roman chariot used in processions or in the circus. In shape it resembled the Greek war-chariot—a short body on two wheels, low, and open behind, where the charioteer entered, but higher and closed in front.

BIGAMY.

BIGAMY, n. *bĭg'ă-mŭ* [F. *bigamie*—from L. *biga'miă*: L. *bis*, twice; Gr. *gamēō*, I marry]: the crime of marrying a second wife or husband while a first is still alive. **BIG'AMIST**, n. *-mĭst*, one who has two wives or husbands at one time. Bigamy is an offense perfectly intelligible in itself to the popular understanding, yet, with a due regard to the strict meaning of the word, extremely difficult legally to define. Blackstone objects to the use of it as a term descriptive of the offense in view; for he says it is corruptly so called, because B. properly signifies being *twice married*, which a man or a woman may legally be; and he therefore prefers the term *polygamy*. B., however, even according to the literal meaning, was an offense, or rather disqualification, according to the canonists, who explained it to consist in marrying two virgins successively, one after the death of the other, or in once marrying a widow; and persons so offending or disqualified were held incapable of holy orders, and therefore B. was anciently considered a good counterplea to the claim of *benefit of clergy* (q.v.), although the law in that respect was altered by a statute passed in the reign of Edward VI., when, bigamists or not, the clergy resumed their strange privilege. Different views prevailed in more modern times, and at a period, too, when the restraints of ecclesiastical dogmas had been thrown off. It is known that certain of the leaders of the German Reformation, including Luther, Melanchthon, Bucer, and Melander, did not withhold their consent from Philip, Landgrave of Hesse, champion of the Reformation, who, having lost conceit of his wife, had applied to the Protestant doctors for license to have another, and which license was not withheld, for the marriage took place, and was performed by Melander in presence of Melanchthon, Bucer, and others; and *privately*, as the marriage-contract bears, 'to avoid scandal, seeing that, in modern times, it has not been usual to have two wives at once, although *in this case it be Christian and lawful*.' Whether Luther and the other Protestant doctors actually held views favorable to polygamy has been the subject of warm controversy (see Sir William Hamilton's *Discussions on Philosophy and Literature*, 1852, 2d ed., 1853; and Archdeacon Hare's *Vindication of Luther*, 1855). Sir William Hamilton asserts that Luther believed in 'the religious legality' of polygamy, and wished it to be sanctioned by the civil authorities—an assertion, however, of which the promised proof never appeared. Archdeacon Hare, on the other hand, maintains that Luther and Melanchthon held only that in certain extraordinary emergencies dispensations from the usual law of marriage might be granted. Be that as it may, the conduct of the Reformation leaders in this matter has been universally condemned, even by Protestants. The ideas referred to never gained ground in Germany; while in Great Britain 'monogamy' not only continued an institution, but its violation was regarded and still is, as a serious offense.

The first English statute distinctly treating B. as a felony was the 1 James I. c. 11, which enacted that a person so

convicted should suffer death. What now constitutes the English law regarding the crime of bigamy is the 22d section of 9 Geo. IV. c. 31, passed in 1828. B. is there declared to be committed by 'any person who, being married, shall marry any other person during the life of the former husband or wife, whether the second marriage shall have taken place in England or elsewhere'—a definition that appears to be adopted by the recent Divorce Act, the 20 and 21 Vict. c. 85. More correctly, however, the offense of B. may be said to consist in going through the *form* or *appearance* of a second marriage, while a first subsists, with a man or woman, against whom the most odious deceit and fraud is thus practiced, and upon whom, especially in case of a woman, the deepest injury is inflicted; for the second marriage is merely a marriage in form—no real marriage at all, because a man cannot have two wives, or a woman two husbands, at one and the same time. In the United States, the laws against B. follow in general the Eng. law; though the important differences between the laws in the various states cause much confusion, and often embarrass the prosecution for B. But everywhere B. is treated as a crime, punishable by imprisonment, usually one to three years, and by fine, usually \$500 to \$1,000. In prosecutions for B., the first wife is usually not admissible as a witness against her husband, because she is the true wife; but the second may testify against the husband, because she is not only no wife at all, but because she stands in the position of being the party peculiarly injured by the B. The same is the procedure in the case of a second husband. Provisions have however been made by recent laws in some places for admitting husband or wife as witness for or against each other. The law excepts from its provisions such cases as the following: That of any person marrying a second time, whose husband or wife shall have been continually absent from such person and not known by such person to be living for the space of seven [or other specified number of] years then last past; also that of a person whose former marriage shall have been declared void by any court of competent jurisdiction.

Usually, every person counselling or aiding the offender, is held equally guilty, and liable to the same penalty; also accessories before and after the fact are severely punishable.—See MARRIAGE: DIVORCE: POLYGAMY.

BIGAROON, n. *bĭg-a-rŏn'* [F *bigarreau* (?)]: the large white-heart variety of cherry.

BIG BETHEL, BATTLE OF: 1861, June 10, at Big Bethel, Va., between the Union forces under Gen. Butler, and the Confederate forces under Gen. Magruder. After Gen. Butler had fortified Newport News he found that the Confederates had control of all the important points in his front, and he planned the surprise and capture of Little Bethel. At midnight June 9–10, he posted troops to gain the rear of the position and to make an assault at daybreak; but unfortunately one of the Union detachments mistook the other for the enemy,

BIG BLACK RIVER—BIGELOW.

and opened fire on it. This firing aroused the Confederates, and they hurriedly retreated to Big Bethel, a better position, and threw up earthworks. The main Union body finding Little Bethel deserted, marched on Big Bethel, and assaulted it several times without success. The gallant Maj. Theodore Winthrop was killed while leading an assault. The Union troops retreated, and the Confederates, fearing Union reinforcements, fell back to Yorktown. Union loss about 100; Confederate, about 10.

BIG BLACK RIVER: rising in Choctaw co., Miss., flowing s. w. 200 m., and then dividing, and entering the Mississippi, one branch in Warren co., the other in Claiborne co., at Grand Gulf. It flows through a rich plain which produces large quantities of cotton.

BIG BONE LICK: a famous 'salt lick,' or deposit of salt near a spring, in Boone co., Ky., 12 m. s. of Burlington; named from the large quantity of fossil bones found there of the mastodon and other animals, which are supposed to have come to lick the salt, and to have perished in the marsh which formerly surrounded the spot.

BIGELOW, *bîg'ê-lô*, ERASTUS BRIGHAM: inventor: 1814, Apr. 2—1879, Dec. 6; b. West Boylston, Mass. His early life having been associated with cotton weaving, his talent for invention took this direction; and before the age of 18 he invented a hand-loom for making suspender-webbing, and a machine for making piping-cord. His next invention, 1838, was an automatic loom for weaving counterpanes, which subsequent improvements brought to perfection. Having invented a loom for weaving coach-lace, his attention was next turned to carpet weaving, and he constructed a power-loom for weaving 2-ply ingrain carpets, which trebled the product of hand-loom. He followed this with his greatest invention, a power-loom for weaving Brussels and velvet tapestry carpets. He founded the Lancaster Quilt Company and Bigelow Carpet Company, at Clinton, Mass., which originated the importance of that town as a manufacturing centre. He published *The Tariff Question* (1863), a scheme of uniform taxation.

BIG'ELOW, FRANK HAGAR: astronomer: 1851, Aug. 28 —————; b. Concord, Mass. He graduated from Harvard 1873, and until 1876 acted as asst. to Dr. A. B. Gould in the astronomical observatory at Cordoba, in the Argentine Republic. During the following year he was employed in the Naval Observatory, Washington, D. C. He then studied theology two years and undertook the ministry, but gave it up on account of failing health, and went again to Cordoba, 1881–3, after which he was for 6 years prof. of mathematics and astronomy in Racine Coll., Wis. In 1889 B. entered the Nautical Almanac office in Washington, and 1891, was appointed to a newly created office in the Weather Bureau at Washington. He has made many inventions of processes important in practical astronomy.

BIGELOW.

BIGELOW, JACOB, M.D., LL.D.: 1787, Feb. 27—1879, Jan. 10; b. Sudbury, Mass. He graduated at Harvard 1806, studied medicine, and practiced in Boston. Having interested himself in botany, he became widely known among European botanists, and many plants were named for him. In 1820, with four others, forming a committee, he framed the *American Pharmacopœia*, in which he introduced improvements in nomenclature. He founded the cemetery of Mt. Auburn, near Boston, for which he also supplied some of the architectural designs. B. was a physician of the Mass. Gen. Hospital 20 years, prof. of materia medica in Harvard Univ., 40 years, and Rumford prof. in that institution 9 years. He was also pres. of the Mass. Med. Soc. many years, and for a time pres. of the American Acad. of Arts and Sciences. He published *Useful Arts Considered in Connection with the Applications of Science* (2 vols. 1840); *Florula Bostoniensis* (1814, 24, 40); *American Medical Botany* (3 vols. 1817, 20); *Nature in Disease* (1854); *A Brief Exposition of Rational Medicine* (1858); *History of Mount Auburn* (1860); *Remarks on Classical Studies* (1867); and other works.

BIGELOW, big'è-lō, JOHN, LL.D.; born Malden, N. Y., 1817, Nov. 25. After graduating from Union College 1835, and taking a legal course, he commenced the practice of law in New York 1839, but gave considerable attention to journalism. He edited *The Plebeian*, *The Democratic Review*, and some books of travel; was inspector of the state prison at Sing Sing 1845-48, managing editor and part owner of the *Evening Post* 1849-61; was U. S. consul at Paris 1861-65, and minister to France 1865-67. He was sec. of state for N. Y. 1867-8, and was appointed assistant U. S. treasurer at New York 1885. The appointment was confirmed by the senate, but he declined to serve. In 1886 he inspected the Panama canal for the New York Chamber of Commerce. He was authorized to prepare for publication the papers of Samuel J. Tilden, and was named as one of the trustees of a large fund left by the latter to establish a public library in New York. In 1888 he was the American commissioner to the International Exhibition at Brussels. The Tilden Trust Fund and the Astor and Lenox libraries were consolidated under the title of the New York Public Library (Astor, Lenox, and Tilden foundations) 1895, and he was chosen president of the consolidated board of trustees, and appointed chairman of the executive committee.

BIGELOW, JOHN, JR.: an Amer. military officer; b. 1854; son of the preceding; was educated in Providence, R. I., and in Paris, Bonn, Berlin, and Freiburg; graduated at U. S. Military Academy 1877; and was assigned to the 10th U. S. cavalry. Was adjutant-general of the militia in the District of Columbia 1887-89, and prof. of military science at the Massachusetts Institute of Technology in 1894-98. In the American-Spanish war he was wounded in the attack on San Juan, Cuba, 1898, July 1. He wrote on *Principles of Strategy, Illustrated Mainly from American Campaigns*.

BIGELOW—BIGNONIACEÆ.

BIGELOW, POULTNEY, an American author: b. 1855; Sept. 10; son of John Bigelow; traveled in China, Africa, the West Indies, and Demerara. He has also made canoe voyages on the principal waters of Europe, and was the first person to take a canoe through the Iron Gates of the Danube. He was for a time a fellow student in Germany with the present Emperor William II. In 1885-87 he edited the *Outing* magazine. He wrote *The German Emperor and His Neighbors*, *The Borderland of Czar and Kaiser*, *History of the German Struggle for Liberty*, etc.

glands; double-glanded.

BIGNONIACEÆ, *big-nō-ni-ā'sē-ē*: nat. ord. of exogenous plants, containing trees, shrubs, and herbaceous plants, generally with compound leaves. The flowers are usually showy, and are among the most striking orna-



Bignonia picta.

ments of tropical forests. The corolla is of one petal, generally more or less trumpet-shaped and irregular.

There are four genera and species in the s. United States: the Bignonia (*B. capreolata*) and Trumpet Flower (*Tecoma radicans*), climbers, with orange or red flowers; the Catalpa Tree or Indian Bean (*Catalpa bignonioides*), with showy white and purple flowers, much cultivated at the north; and, of a sub-family, the Unicorn Plant (*Martynia proboscidea*), s. Illinois, s., and s.w.—the beaked and crested fruit (sometimes pickled), with long recurved hook, looking like a legless bird. The most of the family are tropical, in many cases noble trees, and some of them afford valuable timber, among which are *Bignonia lencoxylon*, a tree of Jamaica, the green or yel-

BIGOT—BIJAPORE.

low wood of which is sometimes brought into the market under the name of Ebony; and the Ipe-tobacco and Ipe-una of Brazil, species of the same genus, the former of which is used for ship-building, and the latter is accounted the hardest timber in Brazil. Not a few are climbing shrubs, and the tough shoots of *Bignonia Cherere* are used for wicker-work in Guiana. *Bignonia alliacea*, a native of the West Indies, is remarkable for its strong alliaceous smell; the leaves of *Bignonia Chica* afford the red coloring matter called Chica (q.v.).—The *Crescentiaceæ* abound chiefly in Mauritius and Madagascar. The Calabash Tree (q.v.) is the best-known example.—The *Pedaliaceæ* are tropical or subtropical; many of them herbaceous plants. The most important is *SESAMUM* (q.v.). The fleshy sweet root of *Craniolaria annua* is preserved in sugar as a delicacy by the Creoles.

BIGOT, n. *bīg'ōt* [F. *bigot*—from It. *bigotto*, a bigot; *bizzoco*, a hypocrite—from *bigio*, gray—applied to certain secular aspirants to superior holiness of life in the thirteenth century]: one who is obstinately and blindly attached to a particular religious belief, to a party, or to an opinion; a blind zealot. **BIG'OTED**, a. unreasonably attached to. **BIG'OTEDLY**, ad. *-ēd-lī*. **BIGOTRY**, n. *bīg'ōt-rī*, blind zeal in favor of something. *Note*.—**BIGOT** appears to have been a nickname and term of derision as early as the end of the twelfth century on the Continent, and probably originated among the Low Ger. races.—**SYN.** of 'bigot': enthusiast; fanatic; visionary; zealot.

BIG RAPIDS: city in Mecosta co., Mich., on the Muskegon river; and on the Grand Rapids and Indiana, the Chicago and West Michigan, and the Detroit Lansing and Northern railroads; 65 m. n. of Grand Rapids. It is surrounded by a farming country and has water power, Holly water-works, a heavy lumber trade, foundries, mills, machine shops, furniture factories, and other important manuf. interests. It has 2 daily and 3 weekly papers, 2 national (cap. \$250,000) and 1 savings (cap. \$50,000) banks, and public schools, and churches. It was incorporated 1869. Pop. (1880) 3,552; (1890) 5,303; (1900) 4,686.

BIG SANDY RIVER: fine navigable affluent of the Ohio, flows through extensive beds of coal. It is formed by the junction of two branches—the e. and w. forks—both which rise in Virginia. The latter traverses several counties of Kentucky, and the former is, during the latter part of its course, the boundary between the two states. Their united waters lose themselves in the Ohio, nearly opposite Burlington, O.

BIHACH, *bē-hāch'*, or **BICHACZ'**: strong fortress-town of Bosnia, on the Una, near the Croatian frontier; lat. 44° 43' n., and long. 15° 53' e. It has been the scene of frequent contests during the Turkish wars.—Pop. 3,000.

BIJANAGHUR, *bēj-nā-gūr'*: a ruined city within the presidency of Madras: see **VIJAYANAGAR**.

BIJAPORE. *be'ja-pôr'*: town of India, in Guzerat, in the Guicowar's territory, on the route from Mhow to Deese,

BIJAPUR—BIKANIR.

200 m. n.w. from Mhow, 60 m. s.e. from Deesa. Pop. 12,000.

BIJAPUR: see BEJAPUR.

BIJAWUR, *be-jaw'er*: petty native state in the Bundelcund Agency; 974 sq. m. Pop. 113,000.

BIJBAHAR, *běj'bâ-har'*: one of the best-known towns in Cashmere, though not one of the most populous. It is on the banks of the Jhelum, about 25 m. s.e. of the metropolis; lat. $33^{\circ} 47'$ n., long. $75^{\circ} 13'$ e. The only particular worthy of notice is a wooden bridge across the Jhelum, which, notwithstanding its simplicity, has endured for centuries, in consequence of the tranquil and equable weather of the valley.

BIJNOUR, *biĵ'nowr*: town of India, chief town of the British dist. of B., Northwest Provinces. $29^{\circ} 22'$ n. lat., $78^{\circ} 11'$ e. long. It is on the route from Moradabad to Mozuffurnuggur, 31 m. e. from Mozuffurnuggur. Pop. about 13,000.

BIJNOUR, the dist., has 1,868 sq. m. Pop. about 800,000

BIJOU, n. *bě-zhō'* [F.—plu. *bijoux*]: a jewel; a trinket. BIJOUTERIE, n. *bě-zhōt'rě*, jewelry; the making or dealing in trinkets or jewelry.

BIJUGATE, a. *bĭ'jú-gāt* [L. *bĭjūgus*, yoked two together—from *bis*, twice; *jugum*, a yoke]: in *bot.*, having two pairs of leaflets on a pinnate leaf.

BIKANIR, BEEKANEER, or BICANERE, *bik'ă-nēr'*: town of India, cap. of a Rajpoot state of the same name; n. lat. 28° , e. long. $73^{\circ} 22'$; 1,175 m. n.w. of Calcutta, in a singularly desolate tract, hard, stony, and utterly unfit for cultivation. The town is surrounded with a battlemented wall, and has a very imposing appearance, but the people are found exceedingly filthy. Immediately to the n.e. is a detached citadel, of which the rajah's residence occupies the greater part. Pop. (by census 1881) 43,283; (1891) 56,252; (1901) 53,075.

BIKANIR, the state, extends from n. to s. abt. 160 m., and from e. to w. abt. 200 m.; 22,340 sq. m. The climate is remarkable for extreme changes of temperature, the night being often very cold, and the day very hot. In the beginning of Feb. ice is formed on the pools; and in the beginning of May the thermometer registers 123° F. in the shade. In the beginning of Nov., according to Elphinstone's experience, each period of 24 hours, according as the sun was above or below the horizon, presented such extremes of heat or cold as often to be fatal to life. The majority of the population are by descent Jauts, a people inhabiting from a very remote period a great extent of country between the Himalaya and the Indian Ocean. The rajah and dominant race are Rajpoots. Brahmans are numerous, but if they do not eat, they trade in, oxen. There are many Jains. Though the people find their principal resource in pasturage, yet water is remarkably scarce: there is not one perennial stream; while wells are brackish, scanty, and precarious, averaging perhaps 250 ft.

In depth; and even the lakes left by the periodical rains are generally saline. In 1868-9, nearly half the population were destroyed by drought. The burning of widows was in former times extremely prevalent in Bikanir. One corpse is said to have been burned with 84 victims. The annual revenue of the state is about £65,000. The military force amounts to about 5,000. Pop. (1901) 584,627.

BIKH· see ACONITE.

BILABIATE, a. *bī-lā'bī-āt* [L. *bis*, twice; *labiūm*, a lip]: in *bot.*, having the mouth of any tubular organ divided into two principal portions, termed lips

BILAMELLAR, a. *bī'lām-ēl'ēr* [L. *lamel'la*, a thin plate]. in *bot.*, having two lamellæ or flat divisions; formed of two plates: also BILAMELLATE, a. *bī'lām-ēl'āt*, in same sense.

BILAMINAR, a. *bī-lām'ī-nēr* [L. *bis*, twice; *lamīna*, a plate, a leaf]: composed of two thin plates or layers; applied to the twofold layers or structures of cells of the *blastoderm*. See ECTODERM.

BILANDER, or BILANDRE, *bīl'an-der*: a small two-masted merchant-vessel, distinguished chiefly by a peculiar shape and arrangement of the mainsail; probably French in origin. Few are now in use.

BILATERAL, a. *bī-lāt'ēr-āl* [L. *bis*, twice; *lātus*, a side, *lātēris*, of a side]: in *bot.*, arranged on or towards opposite sides. BILATERAL SYMMETRY, where the organs of a body are arranged more or less distinctly in pairs; a symmetrical arrangement of organs on each side of a middle line.—See SYMMETRY, BILATERAL.

BILBAO, *bil-bá'o*: seaport town of Spain, cap. of the province of Vizcaya (Biscay); in a mountain gorge on the Nervion, about 6 m. from its mouth at Portugalete; lat. 43° 14' n., long. 2° 56' w. B. is well built; the principal streets are straight, and the houses substantial. Four bridges, one of iron, opened 1868, and a stone bridge of the 14th c., cross the river which divides the old town from the new. There are several fine public walks, numerous fountains, but no public buildings of any note. The city is commercial. It has many extensive rope-walks and manufactures of hardware, leather, hats, tobacco, and earthenware. There are also docks for building merchant-vessels, and in the vicinity are iron and copper mines. The port is difficult to enter or leave. The river was canalized 1886, admitting to the town vessels of 800 tons; larger vessels anchor at Portugalete. In 1886 the vessels entering were reported at 3,958, with total of 2,637,226 tons. The imports consist chiefly of cotton and woolen manufactures, colonial produce, fish, jute, spirits, hardwares, machinery, railway materials etc.; and the exports, of wool, iron, fruits, oil, flour and grains, wines, madder, minerals, licorice, etc. There are more than 200 commercial houses in B. The women here do almost all of the heavy portorage. B. was founded 1300 by Diego Lopez de Haro, under the name of Belvao, i.e., 'the fine fort,' and being well situat-

ed, and little disturbed by the civil wars of Spain, it soon attained great prosperity. In the 15th c., it was the seat of the most authoritative commercial tribunal in Spain. It suffered severely in the wars with France, first in 1795, and again in 1808, when 1,200 of its inhabitants were slaughtered in cold blood. During the Carlist struggles, B. was often besieged, last in 1874. Pop. (1900) 83,306.

BILBERRY, n. *bĭl'běr-rĭ* [AS. *bleo*, blue: Dan. *blaa-baer*, blueberry]: foreign name for *Vaccinium myrtillus*; here, the Bog Bilberry (*V. uliginosum*). B. includes cranberry, blueberry, etc.; ord. *Ericaceæ*, Heath family.

BIL'BILIS: old Iberian city of Spain, about 2 m. e. from the modern town of Calatayud, in the province of Saragossa, known chiefly as the birthplace of the poet Martial, but also for its highly-tempered steel blades. Quintus Metellus won a victory over Sertorius here; and B., under the Romans, was a municipal town with the surname of Augusta. Several of its coins, struck during the reigns of Augustus, Tiberius, and Caligula, are extant—some in the British Museum.

BILBOES, n. plu. *bĭl'bōz* [*Bilboa* or *Bilbao*, in Sp., where made: Dut. *boeye*; L. *boia*, a shackle: compare Gael. *buaile-bo*, a cow-stall]: in *OE.*, among *mariners*, a sort of stocks or wooden shackles for the feet, used for offenders; fetters, consisting of long bars or bolts of iron, with shackles sliding on them, and a lock at one end. When an offender on shipboard is 'put in irons,' it implies that B. are fastened to him, more or less ponderous according to the degree of his offense. The B. clasp the ankles in some such way as handcuffs clasp the wrist. BILBO, n. *bĭl'bō* [*Bilboa*]: in *OE.*, a sword.

BIL'COCK: see RAIL.

BILDERDIJK, *bĭl-der-dĭk'*, WILLEM: 1756, Sept. 7—1831, Dec. 18; Dutch poet and philologist; b. Amsterdam. While studying law at Leyden, and afterwards when practicing at the Hague, he assiduously studied literature and poetry. On the invasion of Holland by the French, he went to Brunswick, and afterwards visited London, where he supported himself by lecturing and teaching. In 1806, he returned to Holland, where he was received as one who had done his country honor; and the newly-elected king of Holland (Louis Bonaparte) appointed him pres. of the Institute at Amsterdam, just then organized after the fashion of the one at Paris, and also made him his own instructor in the Dutch language. B. afterwards resided at Leyden, and then at Haarlem, where he died. His contributions to poetic literature were very numerous; but though they contain many beauties, they show little originality or imagination. With his poetical pursuits he combined Dutch philology, in which department his writings are valuable in exposition of the older Dutch literature.

BILE, n. *bĭl* [F. *bile*—from L. *bilis*, bile]: a thick, yellow, bitter liquor separated in the liver, and collected in the gall-bladder; gall, ill humor. BILIOUS, a. *bĭl'yūs*, having

BILE.

excess of bile; ill-tempered. BIL'IOUSNESS, n. BIL'IARY, a. -yér-í, of or relating to bile. BILE-DUCT, n. a vessel or canal conveying bile from the gall-bladder to the intestine. BILIN, n. bil'in, a gummy, pale-yellow mass, said to be the principal constituent of the bile.

BILE, n. bîl [AS. *byl*, a blotch], more correctly BOIL: in *prov.*, and *OE.*, a soft tumor upon the flesh.

BILE: a fluid secreted from the blood by the liver. One part of it is destined to serve in the process of digestion; the other to be eliminated from the system. It is colored yellow in man; that of granivorous animals seems colored by the leaves they feed upon. The primary cells of the liver (the hepatic cells) separate the B. from the blood of the portal vein, and discharge it into small ducts, which unite to form larger ones, and eventually the right and left hepatic ducts. The latter unite to form the common hepatic duct, which is soon joined by that of the gall-bladder (the cystic duct). This junction forms the common B. duct, which pierces the second part of the duodenum, and running obliquely in its wall for a short distance, opens on its mucous surface.

The secretion of B. is constantly going on, and if there is food in the intestine, the bile mingles with it, and dissolves the fatty portions, preparatory to their absorption, the excrementitious portion of the B. passing out of the body with the other indigestible materials. When the bowel is empty, the B. ascends the cystic duct, and is stored for future use in a small flask-like bag (the gall-bladder) situated under the liver.

If, from any cause, the elements of the B. are in excess in the blood, or should the liver suspend the function of secreting it, not only is digestion imperfectly performed, but the general health suffers from the impure condition of the blood, and the patient is said to be *bilious*. On the other hand, the B. may be secreted, but its escape interfered with, and then its re-absorption will produce jaundice (q. v.). Its solid portions, especially the cholesterine, may be in excess, solidify, and produce biliary calculi or gall-stones. See CALCULUS.

In *chemical composition*, B. is essentially a soap analogous to resin-soap, and as obtained from the ox, contains in 100 parts,

Water,	.	.	.	90.44
Biliary and fatty bodies, including	}	.	.	8.00
resinoid acids,				
Mucus,	.	.	.	0.30
Watery extract, chlorides, phos-	}	.	.	0.85
phates, and lactates,				
Soda,	.	.	.	0.41

The soap is formed from the union of the resinoid acids (*Glycocholic* and *Taurocholic Acids*) with the soda. Human B. has the specific gravity of about 1026 (water = 1000), is of a ropy consistence, with a yellowish-green color; does not readily mix with water, but sinks therein, and only after repeated agitation becomes diffused through the water,

BILGE—BILIRUBIN.

which then assumes a frothy appearance resembling soap-suds. B. has a bitter taste, and a very sickening musky odor. It is interesting to observe that the B. of salt-water fishes contains potash in place of soda; although, from their being surrounded by much common salt (chloride of sodium) in the sea-water, we should naturally expect to find soda in abundance; and the B. of land and fresh-water animals contains soda, while, considering diet and habitat, potash might more naturally be looked for in largest quantity. For the several important functions of B. in the animal economy, see DIGESTION: see also LIVER: JAUNDICE.

BILGE, *n.* *bĭlj* [prov. Sw. *bälga*, to fill one's belly; Gael. *bulg*, a belly; Icel. *bulki*, a hump; Dan. *bulk*, a lump—a different spelling of BULGE]: the swelled-out or bellied part of a cask or ship; the breadth of a ship's bottom on which she rests when aground; also called **BILAGE**, *bĭl'āj*. **BILGE**, *v.* to have a fracture in a ship's bottom; to spring a leak—*lit.*, so as to fill its belly. **BIL'GING**, *imp.* **BILGED**, *pp.* *bĭlj'd*. **BILGE-PUMP**, the pump employed to draw off the bilge water. **BILGE-WATER**, water lying on a ship's bottom or bilge. **BILGEWAY**, *n.* the foundation of the cradle supporting a ship upon the sliding-ways during building and launching.

BILGE, *bĭlj* (sometimes spelled BULGE): the part of the bottom of a ship nearest to the keel, and always more nearly horizontal than vertical. A ship usually rests on the keel and one B. when aground. The name of *bilge-water* is given to any rain or sea water which trickles down to the B. or lowest part of a ship, and which, being difficult of access, becomes dirty and offensive.

BILGEWAYS, *bĭlj'wāz*: timbers which assist in the launching of a ship: see LAUNCH.

BIL'IARY CAL'CULI: see CALCULUS.

BILIFULVIN, *n.* *bĭl'ĭ-fŭl'vĭn* [L. *bilis*, bile; *fulvus*, tawny, yellow]: the coloring matter of the bile, especially that of the ox; same as *bilirubin*.

BILIM'BI: see CARAMBOLA.

BILIN, *be-lĕn'*: town of Bohemia, beautifully situated in the valley of the Bila, 17 m. w. of Leitmeritz; famous for its mineral springs, the waters of which it exports to the extent of 500,000 jars annually. It has a manufactory of cotton yarn, and two castles, old and new. In its vicinity is a remarkable isolated clinkstone rock, called Borzenberg, or Biliner Stein; and the Tripoli earth found at B. has been shown by Professor Ehrenberg to be the remains of infusoria. Pop. about 4,000.

BILINGSGATE, more commonly **BILLINGSGATE**, which see.

BILINGUAL, *a.* *bĭ-lĭng'gwāl* [L. *bis*, twice; *lingua*, a tongue]: in two languages. **BILIN'GUOUS**, *a.* *-gwūs*, speaking two languages.

BILIOUS FEVER: see LIVER.

BILIRUBIN, *n.* *bĭl'ĭ-rō'bĭn* [L. *bilis*, bile; *rubens*, growing red—from *ruber*, red]: the red coloring matter present

BILITERAL-BILL.

in bile. BIL'IVER'DIN, n. -vēr'dīn [F. *vert*, green—from L. *viridis*, green]: a green coloring matter present in bile.

BILITERAL, a. bī-lit'ér-āl [L. *bis*, twice; *litēra*, a letter]: of two letters.

BILK, v. bīlk [Sw. *balka*, to partition off—another form of BALK]: to defraud; to cheat; to leave in the lurch. BILK'ING, imp. BILKED, pp. bīlkt.

BILL, n. bīl [AS. *bil*; Ger. *beil*, an ax: Dut. *bille*, a stone-mason's pick: Icel. *bilda*, an ax: Gael. *buail*, to strike]: an instrument for hewing: an anc. military weapon; the beak of a fowl or bird. BILLED, a. bīld, furnished with a bill. BILL-BOARDS, in *shipbuilding*, an iron-covered board or double planking, which projects from the side of the ship and serves to support the inner fluke of the anchor. BILL-HOOK, a hooked instrument for cutting hedges, pruning, etc.

BILL, n. bīl [mid. L. *bullā*, a seal; *billa*, a writing: Dut. *biljet*, a note]: originally, any sealed writing; in modern usage—an account for goods; a printed placard or advertisement; in *law*, a declaration in writing of some fault or wrong; a written promise to pay money in a certain time; a form or draft of a proposed law before parliament; a written list of particulars in law, in commerce, or in other social usages; in *OE.*, a physician's prescription. BILL-BROKER, one who negotiates the discounting of bills. BILL OF EXCHANGE, a written order on a person in a distant place requesting him to pay money to another—the person who draws or writes out the *bill* is called the *drawer*, the person requested to pay the money the *drawee*, the person to whom the money is payable the *payee*. BILL OF PAINS AND PENALTIES, a bill to inflict certain punishments for treason and felony, to meet a special case. BILL OF FARE, a list of articles ready for food. BILL OF ENTRY, in *com.*, a written account of goods entered at the custom-house. BILL OF LADING, a written account of goods shipped by a person on board an outward-bound vessel, and signed by the master or captain. BILL OF HEALTH, a certificate of the health of a ship's crew. BILL OF INDEMNITY, a bill to release government or its agents from the consequences of an irregular act committed under exceptional and necessary circumstances. BILL OF MORTALITY, a return of deaths in any place. BILL OF PARCELS, a written priced list sent with goods purchased. BILL OF RIGHTS, a summary or list of the rights and privileges claimed by a people—in *Eng. hist.*, specially applied to the declaration of 1688–89, presented by the lords and commons to the Prince and Princess of Orange, 13th February: in the United States, the constitutions of the various states mostly contain full declarations of personal rights. BILL OF SALE, a written inventory or list of goods given by the borrower of money to the lender, as a security, empowering their sale by the lender if the money be not repaid at a given time; a writing under seal, evidencing a grant or assignment of chattels personal. BILL OF EXCEPTIONS, a written statement of errors in law

tendered to the presiding judge before a verdict is given. BILL IN CHANCERY, a written statement put in or filed in the court of chancery. TRUE BILL, an attested written statement by a grand jury of sufficient evidence against a prisoner to warrant a trial. BILL CHAMBER, in *Scot.*, a particular department of the court of session for dealing with certain written documents: see COURT OF SESSION JUDGE'S CHAMBERS. BILL OF SUSPENSION, in *Scot.*, a written application or appeal from a lower to a higher court, to prevent execution of a sentence in a criminal trial. BILL OF DIVORCE, in the *Jewish law*, a certain form of writing given by a husband to a wife by which his marriage with her was dissolved. BILL-STICKER, or BILL-POSTER, one who posts placards, etc. *Note.*—'Proposed laws before either house of parliament are called *bills* while they are under consideration, and after they have been agreed to by both houses. *Bills* only become *acts* after they have received the royal assent.'

BILL, v. *bil* [from *bill*, a beak: Gael. *bile*, a lip]: to caress as doves joining bills; to be fond. BILL'ING, imp. BILLED, pp. *bild*. To BILL AND COO, love-making, expressed somewhat after the manner of doves.

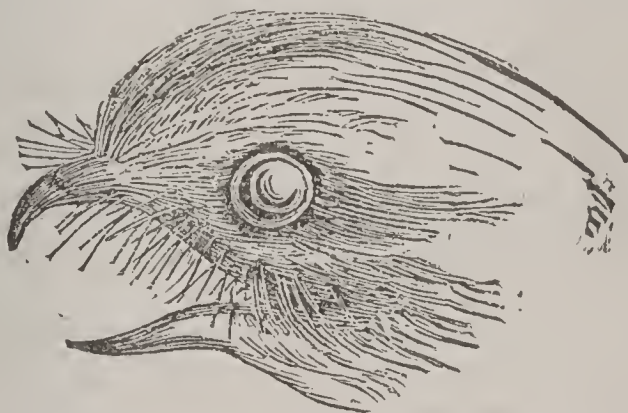
BILL, in Legislation: in the United States, a proposed law or act in a legislative body. It is first read and referred to a committee, who after its examination report it back to the house. If reported unfavorably, it is generally dropped or withdrawn; but if favorably, it passes to a second reading. When a majority votes in favor of a bill at its third reading, it is sent to the other house, where it is dealt with in a similar manner. After it has passed both houses, it is given to the committee on engrossing bills, who cause a correct copy to be made for the president or governor to consider with a view to signature. If signed by him, or not returned within a certain time (usually 10 days), it becomes a law; but if 'vetoed' (returned as objected to) by him, it fails to become a law, unless it is reconsidered in each house separately and voted for by at least two-thirds of each house, in which case it becomes a law, notwithstanding the veto; otherwise it fails. See CONGRESS, UNITED STATES: STATUTES, LEGISLATIVE: PARLIAMENT.

In France, the president promulgates the laws in three days if declared 'urgent' by the chambers, otherwise within a month. During that interval he may demand a reconsideration of the project or B., that is, put the 'suspensive veto' upon it (the only veto known in France). If a majority in each chamber again vote in favor of the B., it 'becomes a law over the president's veto.'

BILL, in Natural History: the hard, horny mouth of Birds (q.v.). It consists of two *mandibles*, an upper and a lower, into which the upper and lower jaws are respectively produced, all appearance of lips being lost. It is not furnished with proper teeth, although rudiments of them have been observed in some of the parrot tribe in the fetal state, and the marginal laminae with which the bills of many water-fowl are furnished partake of the same char-

BILL.

acter, being secreted by distinct pulps. The resemblance of these marginal laminæ to teeth is particularly marked in the Goosander (q. v.). The bills of birds differ much, according to their different habits, and particularly according to the kind of food on which they are destined to live, and the manner in which they are to seek it. In birds of prey, the B. is strong; the upper mandible arched or hooked, and very sharp; the edges sharp, often notched, and the whole B., or *beak*, adapted for seizing animals, and tearing and cutting to pieces their flesh. A powerful, short, hooked beak, sharp-edged and notched, indicates the greatest courage and adaptation to prey on living animals. The beak of the vulture is longer and weaker than that of the eagle or falcon. In birds which feed on insects and vegetable substances, the hooked form of the B. is not found, or is in a very inferior degree; those birds which catch insects on the wing, such as the Goat-suckers, are remarkable for the deep division of the B., and their con-



Bill of Goat-sucker (Insect-eating bird).

sequently wide gape, and an analogous provision to facilitate the taking of prey is to be observed in herons, kingfishers, and other fishing-birds; but the object is attained in their case by the elongation of the B., whereas birds which catch insects on the wing have the B. very short. Birds which feed chiefly on seeds have the B. short and strong, for bruising them; while the B. of insectivorous birds is comparatively slender. Many aquatic birds have broad and comparatively soft and sensitive bills, with laminæ on the inner margin for straining the mud from which much of their food is to be extracted; other birds, as snipes, avocets, etc., seeking their food also in mud, have slender bills of remarkable sensibility. The modifications of form are very numerous, and the peculiarities of the bills of toucans, hornbills, spoonbills, crossbills, parrots, humming-birds, etc., are very interesting, and intimately connected with the habits of the different creatures (See these titles.) At the base of the upper mandible a portion of the B. is covered with a membrane, called the *cere* (Lat. *cera*, wax, from the waxy appearance which it presents in some fal-



Bill of Bunting
(Seed-eating bird).

BILL—BILL-BROKERS.

cons, etc.), which in many birds is naked, in others is feathered, and in many is covered with hairs or bristles. The nostrils are situated in the upper mandible, usually in the cere, but in some birds they are comparatively far forward, and in some, as puffins, they are very small, and placed so near the edge of the mandible as not to be easily detected. They are more or less open, or covered with membrane, or protected by hairs or feathers. Besides the principal use of bills for seizing and dividing or triturating food, they have a variety of functions, as dressing or preening the feathers, constructing nests, etc. They are also the principal instruments used by birds in their combats.

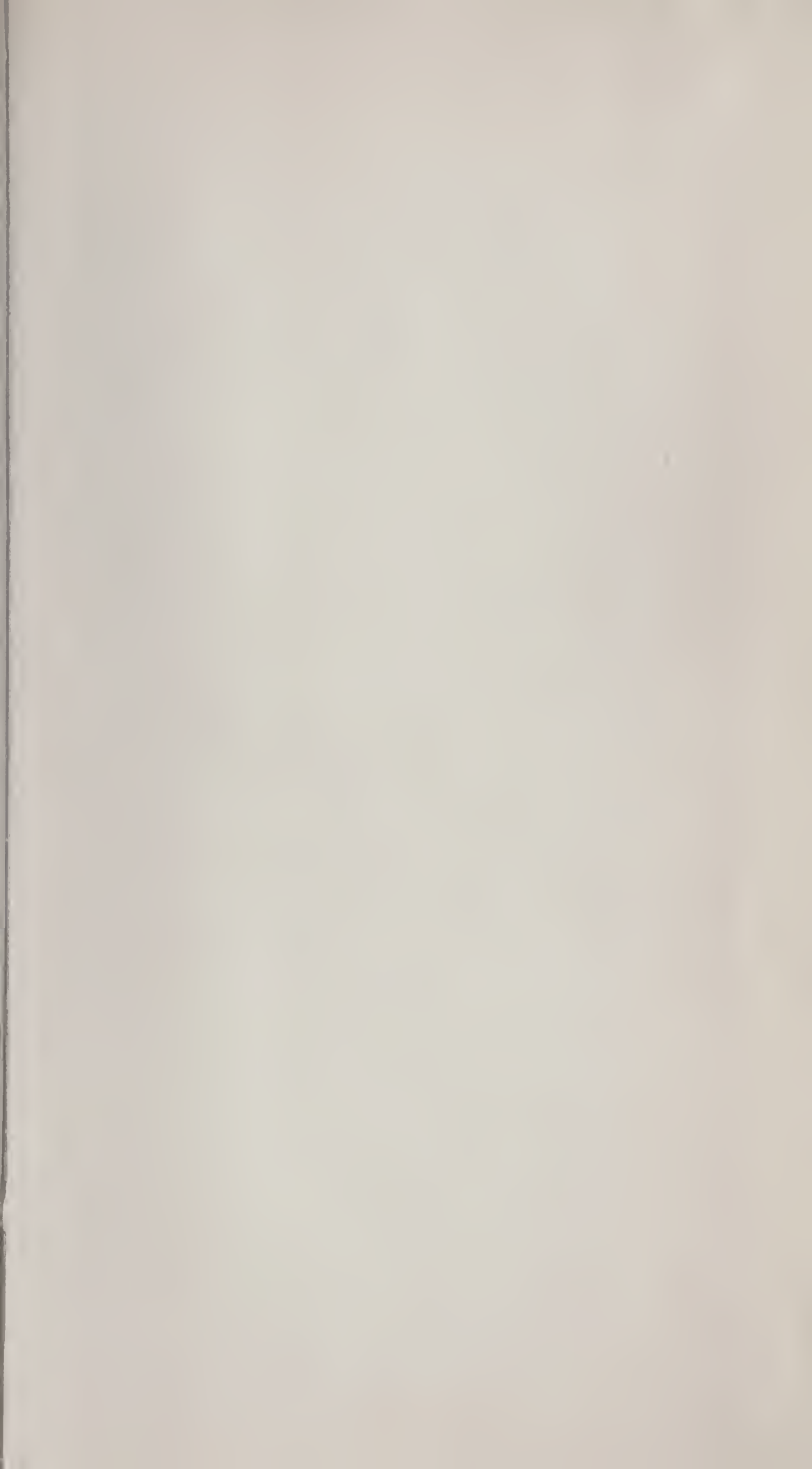
The mouths of some fishes and reptiles assume a character somewhat analogous to that of the B. of birds.

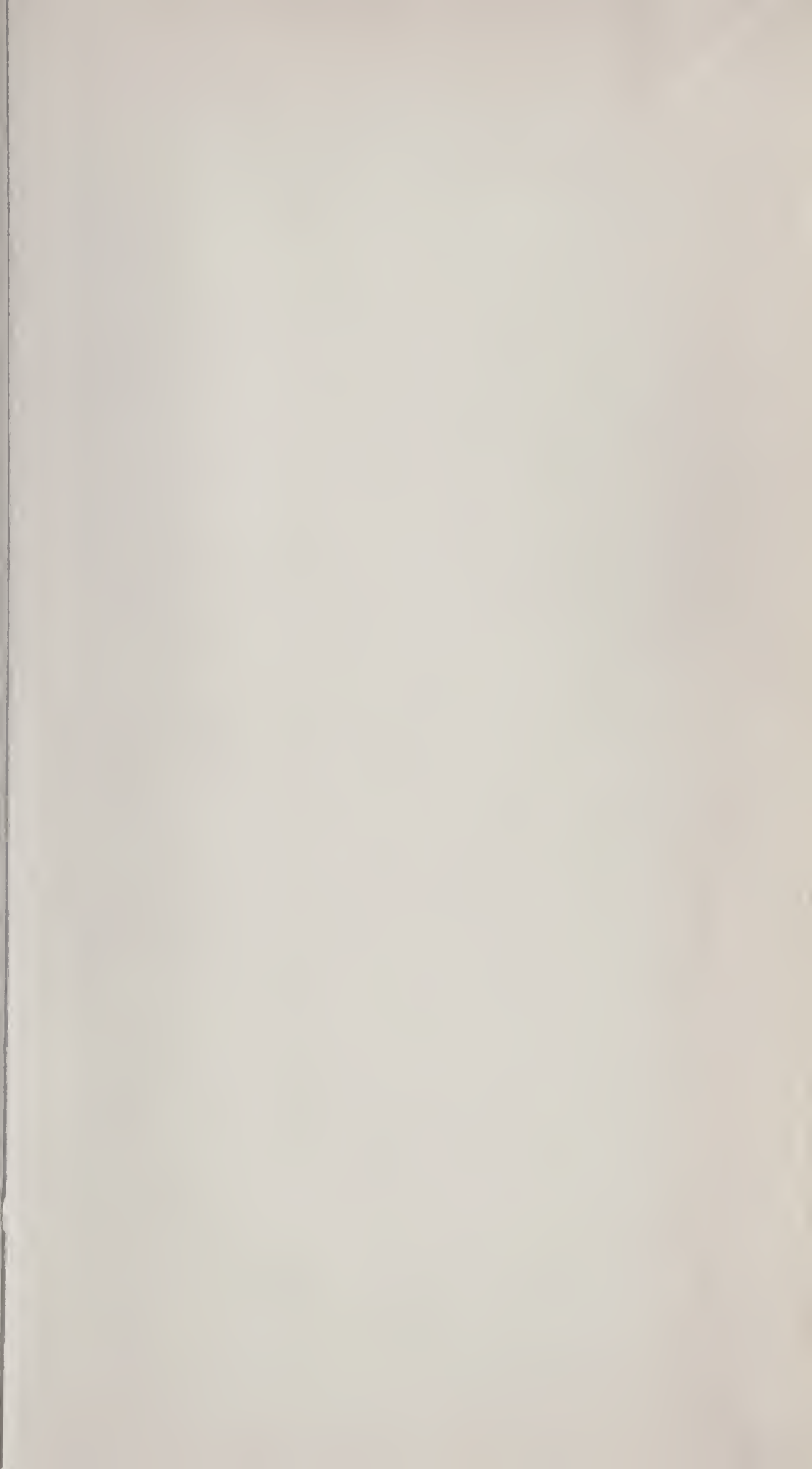
BILL, EXCHEQUER: see EXCHEQUER BILLS.

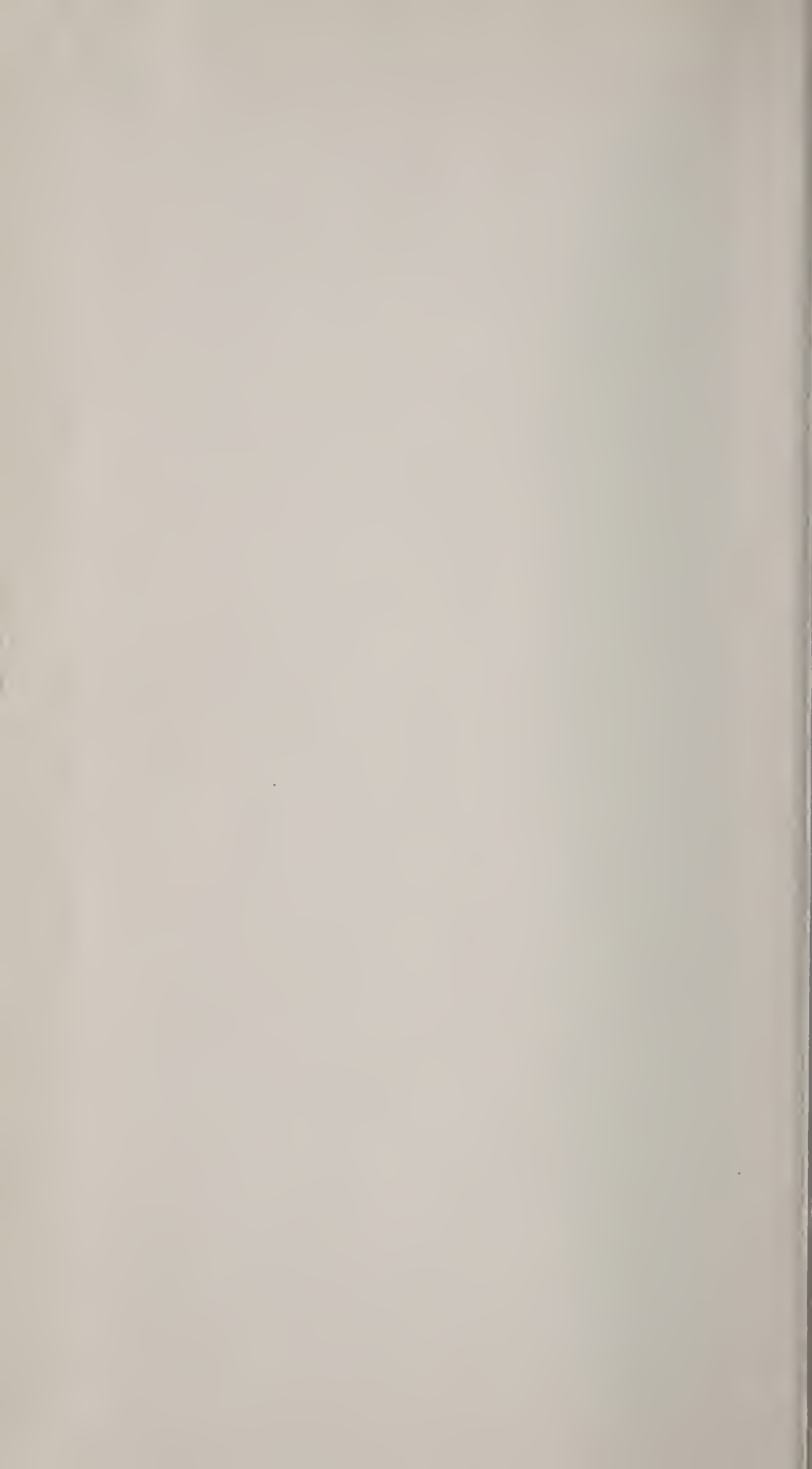
BILLARDIERA, *bil-lar' dī-ä'ra*, or **AP'PLEBERRY**: genus of twining Australian shrubs of the nat. ord. *Pittosporaceæ* (q.v.). They have simple alternate evergreen leaves, and axillary pendulous flowers. The flowers have a calyx of five sepals, and a bell-shaped corolla of five petals. The fruit is a soft, spongy pericarp, with inflated cells, and many seeds, which lie loose in the cells, terminated by the style, and generally bluish when ripe. It is eatable, although not destitute of a resinous character, which prevails in the order. *B. longiflora* and *B. ovalis*, the former with nearly globose, the latter with oval fruit, are ornaments of greenhouses. The fruit of *B. mutabilis* is larger, cylindrical, and of a pleasant subacid taste.

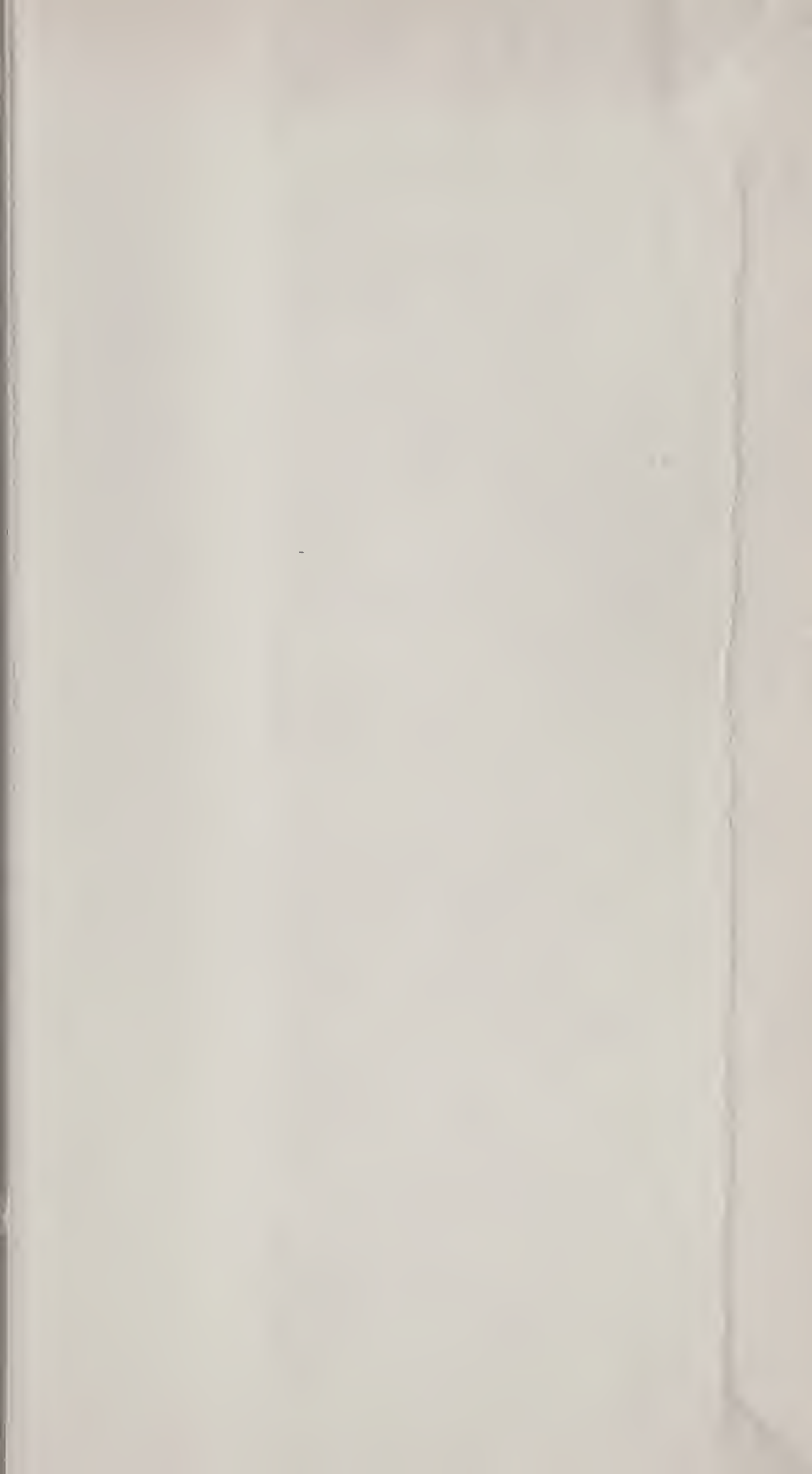
BILLAUD-VARENNE, *be-yō'-vâ-rën'*, **JEAN NICOLAS**: d. 1819: leader in the Reign of Terror in the French Revolution; was active in the September massacres; entered the Convention, where he distinguished himself by violence against the king and the royal family, and his general cruelty. He was the author of the Revolutionary Tribunal, and it was on his proposal that the Duke of Orleans, the queen, and a host of others became its victims. He joined in the end in bringing about the fall of Robespierre, but could not ward off his own accusation as one of the Terrorists, and was transported to Cayenne, where he lived about 20 years, rejecting the pardon offered by the First Consul. In 1816, he came to New York, but was coldly received, and sought asylum in Hayti, where he died.

BILL-BROKERS: persons who, being skilled in the money-market, the state of mercantile and personal credit, and the rates of exchange, engage, either for their own profitable adventure, or that of their employers, in the purchase and sale of foreign and inland bills of exchange, and promissory notes. They are to be distinguished from discount-brokers, or bill-discounters, whose business consists in discounting bills of exchange and notes which have some time to run before they come due, by means of the funds, or on the faith of the credit of capitalists or other persons having the command of money. See **BROKER**: **BILL OF EXCHANGE**: **PROMISSORY NOTE**.

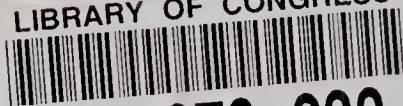








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